Toward a Grammar of Proto-Germanic

Niemeyer

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Edited by
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To our friends
J Milton Cowan,
Einar Haugen,
and
W. Freeman Twaddell

Table of Contents

0. Foreword IX

1. Methods of comparative Germanic linguistics
Herbert Penzl 1

2. Germanic and the other Indo-European languages
Edgar C. Polomé 43

3. The grouping and separation of the Germanic languages
Herbert L. Kufner 71

4. Prosodic features in Proto-Germanic
William H. Bennett 99

5. The Proto-Germanic syllabics (vowels)
Elmer H. Antonsen 117

6. The Proto-Germanic non-syllabics (consonants)
William G. Moulton 141

7. Proto-Germanic morphophonemics
Frans van Coetsem 175

8. Germanic word formation
Pardee Lowe, Jr. 211

9. Proto-Germanic syntax
Winfred P. Lehmann 239

Bibliography 269

Indices 287

Abbreviations 326

Foreword

Like most books, this collection of essays began with an idea. Germanists in the United States have long been aware of the shortcomings of the only Germanic handbook written in English which we could recommend to our students: Eduard Prokosch's *Comparative Germanic Grammar* (1939). Even when it was published, this work was in some respects already out of date. It was essentially a product–and one of the finest–of the neogrammarian approach to language that had been developed toward the end of the 19th century; whereas by the 1930's the most active linguists in the United States were enthusiastically working out a new approach that soon came to be known as 'structuralism.' During the following decades this structural approach was applied increasingly to Germanic, and many of the pioneering articles were written by American scholars. Yet this new view, building upon the work of the Neogrammarians and attempting to advance beyond it, was not easily accessible to our students, since it was presented in a scattering of articles published in a host of different journals. There is, to be sure, one handbook in which the many international contributions to a structural interpretation of Germanic have been brought together and evaluated: In 1962 our Soviet colleagues began the publication of their five-volume *Sravnitel'naja grammatika germanskix jazykov*. But this work is, of course, written in Russian, and therefore accessible to very few of our students.

There were probably many of us who planned somehow, sometime, to remedy this situation, but the task was too great for any one of us. Shortly after his move to the United States in 1968, Frans van Coetsem conceived the idea of persuading a group of American Germanists to write a new comparative Germanic grammar–an updated version of Prokosch, as it were. His original thought was to have the work written by two or three authors, with an advisory panel providing a commentary that would present divergent views, alternative solutions, and the like. In this way, he hoped, there would result a work which would be reasonably homogeneous in nature but which at the same time would reflect the diversity of opinion in an area of knowledge that is now clearly undergoing a 'scientific revolution' (in the sense of Thomas S. Kuhn). With this idea in mind he persuaded J Milton Cowan to invite some fifteen Germanists to a

meeting in New York City in December 1968, in conjunction with the 1968 annual meeting of the Linguistic Society of America.

Perhaps van Coetsem's original idea was not adequately presented at this meeting; perhaps such a formula was simply alien to the modus operandi of a group of individualistic American scholars. Whatever the reasons, the proportion of 'authors' to 'advisers' was reversed: By the time the meeting was over, a dozen colleagues had agreed to write a chapter each; and Einar Haugen and W. Freeman Twaddell had agreed to read and criticize these contributions. Probably without realizing it at the time, we had thus abandoned the notion of a homogeneous handbook in favor of a collection of individual essays–with all the heterogeneity which this implies.

At the meeting in December 1968, van Coetsem's original plan was modified in still another way. The 'commentary' following each chapter would be supplied not by an advisory panel, but by the other participants in the project. The various contributors then set to work writing their individual contributions. When they next met at the invitation of J M. Cowan (at Cornell University in April 1970), still another change was made. It was decided that the notion of various Koreferate following each chapter was too cumbersome and unwieldy. Instead of this, each author would submit his chapter to all other contributors for their comments and criticisms; and each then would–or would not–revise his chapter accordingly. This solution moved the project a little closer toward van Coetsem's original plan, while at the same time preserving the *principle of individual authorship.*

As our project proceeded, there emerged yet another obstacle to the notion of a 'homogeneous handbook,' namely that of approach. For what readership were our individual contributions intended ? To be sure, none of our contributors was rash enough to address himself to that mythical 'intelligent layman' who is interested in everything. But, as it turned out, some contributors had written their chapters for beginning graduate students; others had written them for advanced graduate students; and still others had written them for colleagues who were fellow-specialists in Germanic. Many readers will consider this heterogeneity of approach a serious flaw in this volume. Perhaps it is. At the same time, it is also convincing evidence that the field of Germanic studies has lost none of the vigor, none of the innovative spirit that has characterized it during some two hundred years of scholarly history. The editors have therefore made no effort to introduce an artificial uniformity into a type of work where it cannot exist, namely into a collection of individual essays written by individual authors.

For a variety of reasons, three chapters which ought to be included

in any presentation of Proto-Germanic could not be included: chapters on Auslautsgesetze, on inflection, and on lexicon. For this we apologize. We nevertheless hope that the chapters which *are* included contain at least the bare minimum of what should constitute a grammar of Proto-Germanic.

We noted above that, when Prokosch's *Comparative Germanic Grammar* was published in 1939, it was already partly out of date: it offered a neogrammarian approach to Proto-Germanic at a time when structuralism was coming to dominate the field. Perhaps, by the time our present volume is published, it will also be partly out of date: it will offer by and large a structural approach to Proto-Germanic at a time when transformational-generative grammar is coming to dominate the field. For this we do not apologize. Any writer who tries to summarize a generation of scholarship must inevitably appear as a kind of epigone.

There remains the final and pleasant duty of thanking all the participants in this project for the time and effort which they contributed to our common enterprise. This volume of essays constitutes at least a Diskussionsbeitrag TOWARD A GRAMMAR OF PROTO-GERMANIC. Perhaps it may even serve as a point of departure for the daring soul who, we hope, will soon set out to write just such a grammar.

Cornell University
Ithaca, N.Y.
November, 1971 Herbert L. Kufner

Methods of Comparative Germanic Linguistics

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Outline

0. Introductory remarks 2
1. Field and corpus of comparative Germanic linguistics 2
2. Aims of comparative Germanic linguistics 7
3. Methods of synchronic analysis 10
4. Methods of diachronic analysis 16
5. Methods of internal reconstruction 26
6. Methods of comparative reconstruction 28
7. Methods of grouping and subgrouping 39

0. Introductory remarks

Any account of methodology can be expected to contain a description of the field, its corpus, and data (§ 1), and of the aims and objectives of the particular discipline or subdiscipline (§ 2). It should include everything that most scholars active in the field agree on, or have taken for granted.

I have based myself on the objectives of the discipline as seen in scholarly consensus, and have described pertinent methods of synchronic analysis (§ 3), diachronic analysis (§ 4), internal reconstruction (§ 5), proto-reconstruction (§ 6), linguistic grouping and subgrouping (§ 7). No account of the history of scholarship in Gmc. comparative linguistics was intended, but the nature of the subject occasionally demands that also methods not currently used and not necessarily successful be mentioned. There was no space for a discussion of the linguistic theories linked to some methods: thus our description involves rather procedures of discovery than procedures of evaluation. No general frame for a rationale of 'methods' or 'methodology' within scientific inquiry has been provided either. Chances for cross-references to the specific methods used in the various essays in this book were unfortunately infrequent.

1. Field and corpus of comparative Germanic linguistics

1.1.0 The field of comparative linguistics

This field, sometimes still called 'comparative philology' by British scholars (German: vergleichende Sprachwissenschaft), is concerned with the comparison of genetically related languages, i. e. languages of a 'language family', or language subfamily, and the description of their genetic derivation from a proto-language. The field can thus be subdivided according to the language family or subfamily involved: there is Romance, Germanic, Indo-European; Semitic, Afro-Asiatic; Finno-Ugric, Uralic comparative linguistics. We can define comparative Gmc. linguistics as the comparative linguistic study of the Gmc. branch of the IE language family. Development and history of the individual Gmc. languages are only its concern for the sake of comparison (Krahe-Meid 1969: § 21).

1.1.1 Comparative, historical, genetic linguistics

Comparative linguistics is part of historical linguistics (German: historische Sprachwissenschaft), which is the diachronic study of language and languages. 'Diachronic' refers to the change of language in time.

In the case of languages without sufficient diachronic attestation as,

for instance, the Algonkian and other American Indian language families, historical linguistics and comparative linguistics are practically the same (Haas 1969). Their only history is their prehistory, and it can be only recovered by internal (immediate) and particularly by comparative reconstruction. The latter can be called genetic linguistics and consists essentially of setting up various features of ancestral proto-languages or subprotolanguages (Proto-Algonkian, Proto-Athapaskan, Proto-Muskegean, Proto-Uto-Aztecan) on the basis of dialectal features recorded now. If we, however, have evidence for various historical stages of the cognate languages within the family, the methods of diachronic analysis (4) can be applied and linguistic prehistory viewed as a continuation of the attested linguistic history.

1.1.2 Comparative and synchronic linguistics

Not only diachronic but also synchronic methods of analysis are important in comparative linguistics. Analysis and description of especially the oldest and earliest stages within all subbranches of a language family provide the starting point for comparison and reconstruction. The subfield of descriptive linguistics may be defined as the scientific study of specific languages at a given time and without regard to what preceded or followed or to other languages. The languages studied may be single idiolects or those of larger or smaller speech communities with or without inclusion of regional or social variation ('synchronic dialectology').

'Comparative' as a linguistic term should be restricted to multilingual, genetic comparison, and not be used for, and confused with contrastive ('confrontative') descriptions of features or stages of one and the same language as, e. g., of OE and MnE, or general typological or descriptive comparison between related or unrelated languages as, e. g., E and Ger., E and Chinese. Methods of historical linguistics applied to a whole language family or subfamily can only be comparative. Typological contrasting of the Gmc. languages with other, non-Gmc. languages (Meillet 1917) is an attractive possibility, of course.

1.2 The Germanic languages

1.2.0 The period designations

In comparing the features of the various Gmc. languages, character and age of the corpus must be considered. The corpus itself makes it possible to subdivide the linguistic continuity of each Gmc. language into

various stages or periods which are usually based on significant linguistic changes (4.4.1). These diachronic periods are labelled by such designations for the 'WGmc.' (7.1) languages as:

Old English (OE), formerly: Anglo-Saxon	Middle English (ME)	Modern English (MnE) or New English (NE)
Old Frisian (OFri.)		New Frisian (NFri.)
Old Saxon (OS)	Middle Low German (MLG)	New Low German (NLG)
Old Low Franconian (OLFra.)	Middle Netherlandic or Middle Dutch (MDu.)	Modern Dutch (MnDu.)
Old High German (OHG)	Middle High German (MHG)	New High German (NHG)

Further substages are sometimes indicated by 'late' and 'early,' e. g. early ME, late MHG, etc. Allowing for transition periods or gaps, absolute dates have been given to these periods, which are based on the available corpus and justified by the reflexes of linguistic change:

OE (700–1100)	ME (1100 or 1150–1400 or 1450)	
OFri. (1275–1500)		
OS (800–)	MLG (1200–1500)	
OLFra. (Old Netherlandic) (900–)		MDu. (1250–1500)
OHG (700–1100)	MHG (1100–1350)	
Go. (4th c.)		

For the NGmc. (Scandinavian) languages the following terms seem to be preferred:

Proto-Scandinavian (PScand.)	(reconstructed Nordic; Urnordisch)
Runic (Ru.) (3rd c.–700)	(attested Nordic or North-West-Gmc. [Antonsen 1972]; written in the older Futhark)
Old Scandinavian (OScand.) or	Old Norse (ON) (700–1400)
Old Swedish (OSwed.)	Old Danish (ODan.)
Old Norwegian (ONorw.)	Old Icelandic (OI) (1100–1400).

[ON is often only used for Old West Nordic, the literary language of Norway and Iceland until 1400.]

Wulfila's Go. has no direct descendants; Crimean Go. of the 16th century represents a different Gmc. dialect. The listed designations refer to languages (the 'Old Gmc. languages,' 'early Gmc. languages') for which textual material is available. For Langobardic, usually grouped with OHG, legal terms are attested in the mss. (700-) of the Edictus Rothari; other Gmc. dialects such as Vandalic, Ostrogothic, Burgundian are only reflected by names (1.3.2 below) and by loans in the Romance languages.

1.2.1 Germanic languages and dialects

The term 'dialect' is sometimes used in comparative linguistics to designate a language as part of a language family or subfamily, i. e. Gmc. dialects, IE dialects, Einzeldialekte, etc. More commonly this term is reserved for variants of one language, characterized by specific linguistic features, geographic location, and usually modern descendants. These dialect labels are attached to the Gmc. monuments which form our corpus, e. g. in OE: Kentish, West Saxon, Anglian (Northumbrian, Mercian); in OHG: Franconian, i. e. Rhenish Fra., South Rhenish Fra., EFra., and Upper Ger. (Bavarian, Alemannic); in later OScand.: ONorw., OI, OSwed., ODan. (1.2.0). The dialect of some early Gmc. inscriptions, glosses, loans (1.4.2) cannot be specified. Some unique or conflicting features of later monuments make their subdialectal assignment difficult, e. g. the OHG Isidor, Ludwigslied. If no specific dialectal attestation is to be indicated, scholars have practiced some orthographic normalization in quoting forms, e. g. OHG *ëzzan, lāzan* (Braune-Mitzka 1967). This is part of their abstracting a 'language' from the attested dialectal variation of the corpus.

1.3 The textual corpus

1.3.0 Types of texts

The nature of the Gmc. corpus determines the scope and limitations of its synchronic analysis. Written reflexes of the spoken language, as in the 10th c. OHG Altdeutsche (Pariser) Gespräche, are rare. Glosses, even sizable collections of glosses, provide no context of connected discourse. Poetic sources like the OE Beowulf, OS Heliand, OHG Otfrid differ greatly in style from contemporary prose sources. Syntactic analyses have to cope with the fact that many early prose monuments are translations from Lat., like Alfred's OE translations of the Cura pastoralis and Orosius, OHG Isidor, Tatian, Notker, or from Gk., as Wulfila's Bible. Historical linguistics invariably has as its base a closed and limited corpus, which can be a great handicap to the analyst.

1.3.1 Minimal texts

Many texts, particularly inscriptions, e. g. all continental Ru. inscriptions, are so minimal in size, usually only one or two words long, that their reading and meaning often remain controversial and their specific Gmc. dialect cannot even be identified. Even their Gmc. character

may at times seem suspect, e. g. the Go. (?) *tilarids* (Krause 1966: no. 33). The inscription of the helmet of Negau *(harixasti tei)* was recently proven to contain Lat. inflectional *-i* (Egger 1959; de Tollenaere 1967): thus, the Gmc. corpus lost its presumed earliest monument.

1.3.2 Germanic names

Personal and place names in the writings of classical authors are our earliest linguistic data in Gmc. They are found also in inscriptions and on coins. They are only peripherally part of the Gmc. corpus since they are usually not citation forms but include Lat. or Gk. inflectional endings *(Oulphilas, Segimundus, Saxones)*. During the 'historical' period names continue to be productive sources (3.3.1), e. g. for OHG in the deeds of monasteries like St. Gallen, Fulda, for OE in Bede's church history, etc.

1.4 Nontextual data

1.4.1 Grammatical descriptions

The First Grammatical Treatise (1150) is an OI text itself (Haugen 1950), but even if the writer had written in Lat., his descriptions as well as any other references to Gmc. language data would also be part of our Gmc. data themselves. Otfrid's remarks on OHG orthography in his letter to Liutbert, the Archbishop of Mainz, are quite significant, coming from the author himself (3.4).

1.4.2 Contact data

Early Gmc. loans in other languages are important because they were partly borrowed before our earliest written texts. They may supplement the Gmc. lexical corpus. Loanwords in VLat., late Lat. and Romance dialects, in early Slavic, Baltic, in Finnish and Lapp have to be considered. They may have also come from Gmc. dialects otherwise quite poorly attested such as Ostrogothic, Langobardic, Burgundian (see 1.2 above). Isolated appellatives can be found in classical sources (Caesar's *urus*, Tacitus' *framea; brutis*) (Kluge 1913: § 13).

2. Aims of comparative Germanic linguistics

2.1 Language comparison

Comparative linguistics is concerned with the comparison of all genetically related languages, all 'sister' or 'daughter' languages. This comparison of languages involves all of their features, their entire grammar: there is accordingly a comparative phonology, a comparative morphology (inflection and derivation), a comparative syntax, a comparative lexicology.

The comparison proceeds from a synchronic analysis (2.2) of the oldest attested languages and a diachronic description of pertinent features of their history (2.3) to the reconstruction of their immediate (2.4) and the more remote backgrounds (2.5) as shared by the entire language subfamily. Thus the reconstruction of proto-languages (Ursprachen) seems to be one of the principal aims of comparative linguistics. Grouping or subgrouping within the family on the basis of this kind of reconstruction, is an additional aim (2.6). The question of any extralinguistic objectives has to be considered too (2.7); the possible inclusion of nonlinguistic, i. e. archaeological, historical, mythological data is an issue linked to this.

2.2 Synchronic analysis

Comparative linguistics aims at a firm, well described starting-point (or starting-stage) within the individual languages. The earliest attested stage is particularly valuable, e. g. in our case, languages like Go., Ru., OE, OHG, OS (1.2). But the inclusion of linguistic data from *all* dialects is necessary, even if more recent or quite deficient synchronical material has to be considered (1.3.1). The description of phonology, morphology, syntax, lexicon of the texts is a necessary task. In phonology not just the segmental phonemic pattern, but prosodic features, allophones, and even speech-sounds as such, should be derived as far as possible from the available data. The analyst has to establish the phonemic pattern with its distinctive features and oppositions and the phonotactic distribution. Phonetic values are often hard to establish; clues are provided by internal rules, by the writing system, diachronic, typological, metrical data, and by the evidence of borrowings (3.2) (Hoenigswald 1960: § 2.4).

2.3 Diachronic analysis

The individual history of languages will show in their comparison certain discrepancies which can be explained and described by the assumption of specific diachronic changes. These changes can be phonemic,

morphological, syntactic, lexical. Their description should include: type of linguistic change; connection with other observed changes; placement in time and space; causal factors (4). Any linguistic change is an historical event and the description should include the observable evidence. Phonemic changes ('phonetic laws'), e. g., will turn out to involve increase or decrease in the phonemic inventory: there will be complete and partial mergers (coalescences, 'collapses;' 'collisions'); splits (bifurcations); splits with merger; phonemic losses; changes from clusters to single phonemes; from phonemes to clusters. Phonemic shifts may result in rearrangements of the pattern. Some changes will be sporadic and restricted to some morphemes, e. g. cases of metathesis, assimilations, dissimilations, haplology, and the like. In morphology changes will reveal analogical remodeling (adjustment), in lexicology particularly, borrowing will become apparent. It seems a moot question whether the origin of linguistic change in general (4.6.2) can be a necessary concern of historical linguistics.

The later developments within each Gmc. dialect have to be carefully considered: they may continue or diverge from its reconstructed prehistory and offer important additional evidence.

2.4 Internal reconstruction

Before or together with the comparison of the various individual languages, the reconstruction of stages immediately preceding (underlying ?) each attested one has proven to be essential (5). This internal reconstruction can also be used to fill gaps within the historical period. Its data are only those of the language or dialect itself, so its time perspective does not reach far into prehistory. This reconstruction can involve all aspects of language and is a clear extension of diachronic analysis from the historical to the immediate prehistoric period. The description of the High Ger. shift of 'tenues' with its historical terminal stage *(pf-, -ff, p* in *sp)* necessitates the reconstruction of a prehistoric (pre-OHG) initial stage *(*p)*, which can also be done internally on the basis of the OHG data alone. The recovery of the immediate prehistory of each Gmc. dialect is an important objective of comparative Gmc. linguistics.

2.5 Comparative reconstruction

The comparison of all the pertinent data of the Gmc. languages (1.2) leads to the reconstruction of shared features which we attribute to a PGmc. language. These features can be phonemic, morphological (inflectional, derivational), syntactic, lexical, and are customarily written

with a preceding asterisk. They are diachronically, by means of the comparative method, obtained from, and constitute the assumed genetic base for the attested forms in the cognate Gmc. dialects. The prehistory of all Gmc. dialects means deriving their earliest underlying or attested stages from common Gmc. (Gemeingermanisch) or from an even earlier PGmc. (Urgermanisch) (7.1.3). The focus is less on specific characteristics (phonemic pattern, morphology, syntax, lexicon) of the proto-languages but rather on the diachronic reconstructed development to the Gmc. languages and from the reconstructed IE ancestral language. Krahe–Meid (1969: § 21) e.g. see as the task of Gmc. linguistics (Germanische Sprachwissenschaft) the description of the prehistory of the Gmc. 'Einzeldialekte' from IE and PGmc.

2.6 Grouping and subgrouping

In the comparison of the cognate dialects various shared features and innovations emerge that suggest isoglosses between them. We find, e.g., *i*-umlaut in 'WGmc.' languages and in NGmc. but not in Go. In comparative linguistics, observation and analysis of the distribution of linguistic features lead to grouping and subgrouping within the language family, which may involve setting up sub-proto-languages (7.1.1).

2.7 Extralinguistic aims?

No historical discipline can ignore the facts of external history. Historical events within any language are tied to the fate, experience, interactions of its speakers, their migrations and settlement, their encounters and relations with speakers of other languages, the ecological and cultural conditions of their lives. Some scholars have attempted to explain specific linguistic changes by specific known facts of external history, e.g. substratum changes through foreign occupation. The help of other disciplines as e.g. archeology, has been sought in the analysis of isolated linguistic data. Frequently also extralinguistic questions have been put to language material, e.g. the one concerning the specific location of the ancestral home (Urheimat) of a linguistic group; the one regarding the specific routes of their migrations, the locations and ecology of their settlements; the ones concerning the ethnic composition and the cultural, religious, social, sociological, political features and the organisations of the speakers of the language. The relation between Wörter und Sachen has suggested the use of the lexicon for a 'linguistic paleontology' in IE and Gmc. (6.5). All these interpretations are of legitimate concern to the specialists involved, and their opinions are of interest to linguists. But any such extralin-

guistic analysis can hardly even be considered as a peripheral task for comparative linguistics as such.

It cannot be denied that the methods of dialectal geography as applied to the distribution of language features, including onomastic data, are also closely linked to the recognition of such extralinguistic factors as geography, settlement, routes of communication, administrative and cultural divisions and groupings. However, for prehistoric times in Gmc., linguistic evidence available for such extralinguistic interpretations is scarce and highly deficient (7.1.2; Kufner 1972: § 4.4).

3. Methods of synchronic analysis

3.1 Types of description

3.1.1 Different models

The description of a language will vary according to the model used. Certain methods and techniques of analysis are linked to specific models of language design. Such types of language description as, e.g., 'item and arrangement,' or 'item and process,' or specifically generative-transformational, stratificational, glossematic models can be applied to the oldest attested stages of Gmc. languages as well as to the spoken forms of their present-day dialects. Methodological criteria cannot, on the whole, by themselves serve to evaluate the respective merits of these types of description. Such descriptive principles as 'economy,' 'simplicity,' or 'elegance' seem, however, less important than the commitment to 'reality' ('realism') or historical truth, which is essential in dealing with material not amenable to direct observation or experimental verification. Highly arbitrary or artistic manipulation of noncontemporary data, whether synchronic, diachronic, or comparative, may appear stimulating or aesthetically pleasing to some but has also been rejected as the 'hocus-pocus'-method by others. One general assumption should invariably apply, namely, that also in times of the past the production (generation) and function of human speech and language were the same as it is observable today.

3.1.2 Synchronic and diachronic descriptions

What is actually the status of synchronic description within the diachronic frame of comparative linguistics (1.1.2)? We do not, of course, believe any longer in an absolute dichotomy of historical (diachronic) and descriptive (synchronic) linguistics like Saussure; we do not think

that only a synchronic description can be structural and systemic. Neither can we agree with H. Paul or Meillet that the only 'scientific' approach to linguistic data is the historical one, or that descriptive linguistics can only describe but not 'explain.' Historical linguistics cannot do without synchronic description of the 'stages' of languages (4). Some synchronic descriptions, however, incorporate diachronic segments which may range all the way from occasional parenthetic references to earlier or later stages to a systematic arrangement based on history or prehistory. In many Ger. dialectal studies the phonology is arranged according to postulated MHG source-phonemes. Grammatical descriptions of Old Gmc. languages, even of NHG dialects, have often used prehistoric ('WGmc.,' 'PGmc.') phonemes as referential frame. Scholars who do not practice or approve of such 'mixing' of approach will, nevertheless, not object to including available diachronic, both historical and comparative, evidence for synchronic analysis itself (3.2.2f.).

3.2 Analysis of textual material

3.2.1 The philological method

The source material for our Old Gmc. languages consists of texts (1.3), and some nontextual data (1.4). The suitable methods of analysis are also determined by the nature of the data.

The larger and more homogeneous the available texts, the easier the analysis. All texts, whether large or small, must first be analyzed by the 'philological' method. This method applies in the case of written sources, modern or old; a fieldworker's notes or a scholar's own recordings; transcriptions of texts; one-word stone inscriptions or hundred thousand-line manuscripts. The first step must concern the transmission of the text itself. Analyses will differ according to the preservation, e.g., whether in an autograph by the author, in copies of copies, an early modern printing of a medieval original (OHG Trier Capitular), etc. Scholars have not always exercised enough caution in drawing specific conclusions from texts like Busbecq's Crimean Go. text, which is an unauthorized Paris printing of a dilettante's field-notes based on one interview with a nonnative informant. The aim of the linguistic analysis is the complete description of phonology (3.2.2f.), morphology (3.2.4), syntax (3.2.5), lexicon (3.2.6).

3.2.2 Phonological analysis: scribal practice

The evidence for phonology (2.2) is largely graphic. The second step within the philological method must therefore be the study of the graphic system of the texts. In Gmc. sources we encounter the Lat. and the Ru. alphabets as well as Wulfila's Go. alphabet which is essentially derived from the Gk. alphabet. Classical grammarians have described the contemporary sound values of Gk. and Lat. symbols (Sturtevant 1940). The use of Lat. letters for equivalent or parallel Gmc. sound values can be assumed, even if not only the classical but also a late Lat. or a Romance and the Irish pronunciation must be considered. In all texts symbols like *a o* indicate nonhigh vowels, symbols like *d t* dental, *b p f* labial consonants, *l r* 'liquids,' *n m* nasals, etc. In studying the orthographic system of each text, the 'graphemic' inventory of symbols must be noted, including their merely graphic variation such as the use of capitals (i I), punctuation symbols, abbreviations, accent marks, etc. Even only orthographic features can help in dialectal identification (1.2.1). Corrections and slips of the pen can be of linguistic interest. Unfortunately, even diplomatic modern editions of manuscripts do not render the exact original spacing of morphemes, although this as well as line divisions may indicate 'juncture' or morphemic division. The differences between name forms in draft and actual deed in St. Gallen reveal the presence of orthographic regional norms at an early date in OHG. Systematic personal changes in scribal practice can offer significant evidence, e.g., Orm's ME spellings for the loss of phonemic consonant length.

Only larger texts with more or less homogeneous transmission will enable the analyst to derive complete underlying phonemic systems from the graphemic data. This applies, e.g., in the cases of such texts as Beowulf (OE), Heliand (OS), Otfrid (OHG), Wulfila's Bible translation (Go.), but not, e.g., in the case of the OHG Hildebrandslied because of its orthographic mixture. The working-hypothesis behind this phonemic analysis of texts is a bi-unique relationship between symbols and phonemes in early scribal practice. Deviations can thus be easily spotted and may reflect interference from a different phonemic system, e.g., the scribe's (scribes') versus the author's or the one of the Vorlage. Deviations from the system may be called 'occasional' but are not 'naive' in times lacking a rigid orthographic tradition. We explain this trend towards bi-uniqueness by assuming that scribes and authors were aware of the phonemes of their native dialects, but only of some of their allophones, if they were bilingual or multilingual. We have insufficient evidence to decide to what extent Gmc. scribes used different and nonnative sounds in their pronunciation of Lat. and thus were really phonemically bilingual.

Within the texts oppositions can sometimes be observed by minimal or near-minimal graphic pairs: e.g., OHG *min* 'less', *miin* 'my' (Isidor). As part of the analysis all variations both in identical and in parallel morphemes should be noted as well as all alternations within sets (Penzl 1971: § 4.3). Also inverse (reverse, inverted) spellings are important for a diachronic interpretation (4.2.1). E. Sievers believed in the scribal rendering of allophones conditioned by intonation and in his tool of Schallanalyse, essentially a scholar's intuitive reproduction to determine exact sound-values (4.1).

Phonological identification of the graphemic values is aided by typological considerations concerning Gmc. pattern structure and the knowledge of existing general (universal?) and specific constraints. Diachronic evidence may also be used most profitably (3.2.3).

3.2.3 Diachronic, metrical, loan evidence

Diagraphic comparison, i.e., comparison with spellings of the same or parallel morphemes, in earlier, later, dialectally differing texts will reveal the variation, intersection, or coalescence of symbols. This often permits also synchronic conclusions for the phonemic pattern (3.1.2). The knowledge of preceding or following stages can, generally speaking, be of great importance in synchronic analyses. The observable data of present-day dialects are often used to assist in the analysis of earlier texts from the same region, e.g., modern High Alemannic values for Notker's orthography, etc. No definitive conclusion can be drawn from such parallels, however.

Additional information can be obtained in poetic monuments by the study of rimes, assonances, alliteration, and the metrical structure of the verse lines. It is doubtful whether the alliteration of all vowels in Gmc. poetry necessitates the inference that the glottal stop was used in initial position (Flasdieck 1950).

The rendering of sounds in Lat. and other loanwords, also of Gmc. loans in non-Gmc. languages, must be examined in the texts. The usefulness of loans as evidence in Gmc. phonological history will depend on their transmission, whether it was oral or written, direct or through another intermediary language (Celtic?). Contrasting is the only available method to sort out on a synchronic level imitative versus substitutional representation of the sounds involved (3.3, 5).

3.2.4 Morphological analysis

In the analysis of the constituents of Gmc. textual word-forms, lexical (stems, roots), derivational (prefixes, suffixes, infixes), and inflectional (grammatical) morphemes have been differentiated: e.g., Go. *managizo* 'greater' with the stem *manag*, formed by the suffix *-ag; -iz-* the comparative suffix; *-o*, the inflectional ending (wk. neut. nom.). Outside of the stem, 'allomorphs' (morphs) are described as variants of morphemes, either only if determined morphophonemically or phonotactically (e.g., MnE pl. *-s*, *-z*, *-iz*), or by suppletion too (all MnE pl. endings). Some handbooks provide, with or without diachronic motivation (6.3), a breakdown which includes submorphemic formatives, e.g., Go. *þamma* (dat. sg.) as *þa* + *mm* + *a* or OE *him* as *h* + *i* + *m*.

Word-formation occurs by derivation, e.g., affixation, ablaut, and by compounding, i.e., the combining of bound or free morphemes. The grouping of nominal and verbal morphemes into paradigms results in convenient lists of the morphological inventory of texts or periods.

3.2.5 Syntactical analysis

Gmc. syntactical analysis was considered in spite of many valuable studies in the 19th century, in the words of Arntz (1934: 60), a 'Stiefkind' of scholars. Even some comprehensive handbooks dealing with entire periods such as OHG, OE, or an entire corpus (Go.), omitted the syntax. The nature of the Gmc. corpus (1.3) partly explains this. We have, however, now many individual studies dealing with word order, sentence and phrase structures, selection of forms in phrases and sentences, and the combination of sentences in the Old Gmc. languages. There has been a persistent tendency in historical syntax to look for general underlying structures, sometimes referred to as 'innere Form' and the like.

3.2.6 Lexical descriptions

The existence of early glosses, which constitute quasi-texts (1.3.0), and of early lexical loans into and from Gmc. (3.5) actually makes more material available for lexical analysis than for any other linguistic aspect. The analysis of these Wörter can be useful for extralinguistic interpretations as well (2.7). The meaning of lexical entities can be most clearly ascertained by studying the characteristic environments in which they occur in texts. Words with almost or completely identical total environments are called 'synonyms;' words with only partly contrasting contexts or environments may belong to the same lexical or semantic

field (Wortfeld). Units occurring in a wide range of possible, mutually incompatible environments may have to be regarded as two or more 'homonyms' rather than as polysemous single entities (cf. 4.2.4, 6.5).

3.3 Germanic names

3.3.1 Personal names

Gmc. names as cited by Greek and Roman authors (1.3.2) can be considered loans from Gmc. languages. They have been used, particularly for the times before our earliest texts and for areas without textual data, to supplement the data for Gmc. phonological history. Their specific transmission remains usually quite uncertain. The Lat. or Gk. forms may contain, if their peculiarities are not merely graphic (Schönfeld 1911: XXIIf.), either phonetically imitating substitutions or replacements (Lautersatz) according to morphemic or phonotactic patterns (3.2.3).

Accented *a* and unaccented *o* in forms like *Ariovistus*, *Marcomanni* (Schönfeld 1911: XVIIf.) have been explained by scholars variously as imitations of two Gmc. phonemes split from IE **o*, or of two allophones of Gmc. */a/*, or as a Lat. mixture of imitation *(a)* and morphologically conditioned replacement *(o)* or as due to a Celtic intermediary form.

Name evidence has been used diachronically often without proper synchronic analysis. Höfler's (1957) evidence of Gmc. name spellings for a shift from 'media' to 'tenuis' in the Go. dialects spoken in Italy and Spain, and elsewhere, seems quite unconvincing. The consistent change of *ē* to *ā* in the rendering of WGmc. names, however, is conclusive evidence for a corresponding sound shift (4.2.1; Schönfeld 1911: XXI). Marchand (1959) is certainly right when he warns of the use of hapax legomena (e.g. *Hanhavaldus*) as evidence for pronunciation.

3.3.2 Place names

Place names as well as personal names have been used for phonological analysis. The specific sound value of the Gmc. long mid back vowel was debated because of its rendering by Lat. *ā* in Caesar's *Bacenis* (OHG *Buochunna*).

Place names have often preserved the language of previous settlers. Krahe pointed to European hydronyms ('Gewässernamen') which do not clearly and specifically reflect either Gmc. or any other IE (Celtic, Italic, Illyrian, Baltic) languages.

3.4 Nontextual material

All statements about the language must be considered in the light of textual evidence (3.2). The First Grammatical Treatise offers a good description of ON orthographic practice in its relation to the phonemic system (Haugen 1950).

Otfrid's comments in his letter to Archbishop Liutbert of Mainz on *yr-*, the use of *z*, *k* for non-Lat., OHG sound-values provide important evidence for possible [ə], a fortis sibilant, and aspirated *k* (Penzl 1971: § 8). For the early modern periods in the Gmc. languages, orthoëpic evidence is quite plentiful.

3.5 Loans in non-Germanic languages

Sometimes loanwords in non-Gmc. languages make specific phonetic identification possible. Some loanwords in Finnish and Lapp appear to show a derivation from a stage in Gmc. that antedates that of our known texts: e.g. *rengas* 'ring' (ON *hringr*) with [e] before preconsonantal nasal. The controversy regarding *t* instead of *tt* in Finnish *nauta*, gen. *naudan* 'cattle' (ON *naut*, OE *neat*), whether the word was borrowed with **d* before the Gmc. shift of mediae, shows the difficulty of specific sound identifications based on representation and substitution in another language. Fromm (1957–58) explains these renderings as reflecting an imitation of 'eine lautkombinatorische Schwächung der germanischen Tenues.' OHG *s* is frequently rendered by a Slavic shibilant, OHG *z* by a Slavic sibilant. This evidence can be used for the phonetic description of the OHG sibilants (Penzl 1971: § 7.14b).

In judging loans, often also external historical and archeological facts were considered: it was concluded on the basis of archeological evidence that the Go. layer is the oldest among Finnish loans and is not preceded by any 'PGmc.' layer at all (Fromm 1957–58).

4. Methods of diachronic analysis

4.1 Synchronic evidence in diachronic analysis

Diachronic as well as synchronic descriptions vary according to the model of language design (cf. 3.1.1). In the comparison or contrasting of synchronic stages the evidence pertinent to synchronic description is also used diachronically. All we need is at least two discernible stages that we can compare. We can contrast spellings, forms, syntactical patterns in texts. Riming practice, orthoëpic and grammatical statements,

contact phenomena, present-day language data can be compared. Gaps in the documentation make a detailed historical account often difficult, even, e.g., in the case of Lat. (Meillet 1967:20ff.). Linguistic change involves phonemes and sounds (4.2.1), morphemes (4.2.2), syntax (4.2.3), the lexicon (4.2.4).

In the analysis of sound change, the description will differ depending upon whether the analysts do or do not assume gradualness for most of its types, i.e. a change by imperceptible, infinitesimal allophonic steps, unknown to the speaker of the language. Proponents of generative grammar oppose this, or consider it trivial, since they see in linguistic change only the addition, deletion (loss), re-ordering, modification of rules eventually leading to 'restructuring' (King 1969). Intermediate stages between the initial and the final stages of a sound change are recognized even by scholars who are inclined to reject the classical model of gradualness.

Distinctive or relevant phonetic features such as voicing, manner of articulation (stop, spirant, vowel, nasal, etc.), and the like, are part of the structural description of phonemes and the phonemic patterns. Phonemes, not their component features are treated as the basic units by structuralists. The 'distinctive features' of Jakobson and Halle (1956), however, involve a limited matrix of articulatory-acoustic parameters in a binary pattern viewed as universals of human speech.

In contrasting and analyzing texts, the philological method (3.2.2) reveals orthographic change as evidence for sound change: e.g., Isidor's *buohhum* besides *boohhum* the OHG diphthongization of the original /ō/. Reverse (inverse) spellings usually indicate phonemic merger.

The types of linguistic change (2.3) must be clearly identified and described (4.2). Its historical setting requires its location in place (4.3) and time (4.4). The modern view of pattern and system demands that each change be described also in its connection with other linguistic changes (4.5). All factors which are likely to have contributed (or hindered) the change have to be considered (4.6). Theoretical considerations will often determine the interpretation of causality.

The 'philological' method of textual analysis is also essential for diachronic study. Sievers' sensitive, internalized reading-reaction test, his Schallanalyse as practiced with texts (3.2.2), revealed to him instances of incipient sound change due to intonation. Modern experimental phonetics cannot reproduce historical sound change unless universals of human articulation are involved. The computer can only test the consistency of the rules it was programmed for.

4.2 Types of linguistic change

4.2.1 Phonological change

The diachronic analysis of phonological change has as its main technique the diagraphic comparison of identical or parallel forms in texts of all sizes (1.3). The evidence obtained this way will be diagraphic correspondences which show the same or differing symbols. The systematic differences may turn out to be modifications of the shape of the symbol, replacement by another 'letter' or a group (two or more) of letters, thus resulting in partial or total loss and graphic intersection or total coalescence with another symbol (graphic shift, split, merger, loss). These diagraphic correspondences will have to be considered within the framework of the graphic system of each compared text (3.2.2), not in isolation or atomistically. Thus, also changes in variation and distribution have to be studied. For names (1.3.2) this procedure is usually not feasible, and their diagraphic comparison is rarely conclusive (3.3).

This philological analysis will thus yield evidence that can be analyzed both phonetically and phonemically. We assume the regularity of sound change. As to the phonemic analysis, various types of phonemic change (2.3) can be observed through the graphic data. All types of nongradual change (Lehmann's 'change by phonemes') can be observed directly by the appearance of the respective symbols: Go. *jaþþan* beside *jah þan* (assimilation), OHG *pereg* beside *perg*, *berg* (svarabhakti, vocalic excrescence), OE *đirda* < *đridda* 'third' (metathesis). Phonemic shift can be indicated by the choice of another symbol: OHG *thaz* and *daz*. Phonemic merger is reflected by orthographic merger or intersection, first by reverse spellings or considerable direct variation, part of which may be 'occasional' misspellings. Reverse forms may be hypercorrect, e.g. OHG *sulicheru* (gen. pl.; Otfrid's ms. F) instead of *sulichero*, or indicate phonemic merger. Phonemic split may at first not be reflected by a graphic split; in OE sometimes the use of *k* and *c*, e.g. in the Rushworth glosses to the Gospel of St. Matthew *(kyning, cild)*, reveals the phonemic split.

The same way as for synchronic study, the graphic textual evidence must be supplemented by any nontextual evidence that is available (1.4, 3.3). This can be very helpful for specific phonetic interpretation. The later development and present-day reflexes in the standard language and dialects are important evidence: e.g. MnE *king*, *child* and pre-OE **k*. Orthographic practice may have changed its function, e.g. the double writing of consonants in OE and MnE; MHG and NHG. Phonetic identification of all stages of the change involves also considering the respective probability of phonetic changes and pattern structures. Typological arguments play a significant role too.

If we assume that allophonic variation is the first step in most, if not all phonemic changes, then phonetic probability of the allophones must be considered: e.g. of palatal variants of /*k*/ before palatal vowels in OE, etc. Transitional intermediate stages as often assumed seem practically a lesson in phonetic similarity; this applies whether the description is organogenetic or more in terms of distinctive phonetic features: e.g., MHG *ī (zît)* > *i̯i̯* > *ei* > *əe* > NHG [ae] *(Zeit)* (Penzl 1969: § 53). Phonemization (phonemicization, phonologization) of allophones is the important event in phonemic change.

A parallelism in the development of phonemes which share distinctive features (e.g. *ī* besides *ū* as high tense long; *s f x* as voiceless spirants) is an empirically observable fact. This makes the rules of the transformationalists simpler, and can be used to aid in the identification of features of changing phonemes which are either less evident or differ in development. The role of phonemes in the conditioning of changes of other phonemes may in turn throw some light on their own phonetic characteristics, e.g. the monophthongization of *ai* before the consonants *h r w* in OHG *(zēha, mēro, ēwa)* points to features shared by them (Penzl 1971: § 12).

Merely allophonic changes are usually not recoverable. The role of borrowing both in origin and spread of phonological change is hard to determine (4.3). Most scholars do not assume that loanwords can trigger phonemic changes in the borrowing language or even that phonemes are apt to be directly borrowed in loanwords.

4.2.2 Morphological changes

In the textual comparison of corresponding grammatical forms we observe often striking differences. Some of them will clearly show phonemic change (4.2.1). Phonemic change creates allomorphs which contain types of morphophonemic alternation. Diagraphic comparison in other cases yields no immediately certain result. It seems e.g. phonetically highly improbable that the change between Stentofta's *bAriutiþ* (7th c.) (Krause 1966: no. 96) and Björketorp's *bArutR* (8th c.) (Krause 1966: no. 97) 'breaks' should show a Nordic sound change *þ* > *R* in final unaccented position. The future development (Swed. *bryter*, Dan. *bryder*) clearly reveals the latter form as an analogical extension from the 2 sg. The comparable replacement of final *-th* by *-s* in ME *(singeth, sings)* seems somewhat more complex (for OE, Sievers – Brunner 1951: §§ 357, 360).

The operation of analogical change tends to level out morphemic distinctions within a paradigm or linguistic set and between paradigms

(sets) or to extend morphemic distinctions found in one set to another morphemic or syntactic set. No atomistic treatment is possible here. The sets may be inflectional, derivational, or syntactic. The pattern which is extended varies: sometimes greater differentiation, more frequently less differentiation (i.e. 'leveling') spreads. Single adjacent forms within a set tend to become more similar to each other: e.g. the IE numerals. General rules for analogical remodeling are hard to set up; Mańczak's (1958) critique of Kuryłowicz's rules shows this clearly.

Morphological changes often show connection with phonemic changes and with syntactical change (4.5.1). The development, e.g. of a word group into a single form is invariably aided by phonetic factors (stress, juncture); examples are provided by the Scand. developments of postpositive pronominal forms plus nouns to simple definite noun forms; and of reflexive pronoun plus verb to simple medio-passive forms, e.g. ON *finnask* (< **finna sik*) 'to be found.' Other morphological changes involve derivational processes such as compounding and affixing (prefixes, suffixes). Hoenigswald (1960: chapter 4) has shown that also morphological and lexical changes can be classified like phonological ones: replacement between two 'co-allomorphs' (analogical change), merger (e.g. syncretism), split, shortening, and increment.

4.2.3 Syntactical changes

The difference in the character of the texts (1.3) accounts for degrees of usefulness for syntactical study and comparison. Minimal texts without connected discourse, poetic texts, translations, all extremely frequent in the Old Gmc. corpus, have to be used with caution. Stylistic, text-bound factors must be considered; only real correspondences found in the textual comparisons can establish syntactic change.

The changes to be observed are the changing distribution of case forms among nominal classes, of tense and other category forms among verbs, of particles, pronouns, and other function words, and the changes in the order of words within phrases, within the sentence and in the linking of sentences. Modern stages have to be even more frequently introduced to clarify former stages than in the fields of phonology and morphology.

The question of the influence of parallel patterns in Lat. and Romance is important (4.6) but the proof of syntactical borrowing is not simple if other parallel factors are also known to be present.

4.2.4 Semantic (lexical) changes

Since vocabulary (lexicon) is synchronically less structured (3.2.6) than other aspects of the language, the diachronic comparison of its corresponding items in texts is apt to be more individualistic, not to say atomistic, than the comparison of sounds, forms, the use of forms. This is not meant to deny the importance of lexical grouping in the Wortfeld and the necessity of dealing with sets of words. 'Each word has its own history' was a statement that resulted from the recognition of multiple borrowing of vocabulary between dialects and 'standard' language, regional and social dialects themselves, and between related and unrelated languages. Extralinguistic interpretations of such borrowing of vocabulary (2.7), strikingly shown by dialectal geography, have been frequent. The comparison of synchronically analyzed texts will reveal changes in the incidence and environment of lexical units, losses through obsolescence, also new forms, created by combination, collocation, through borrowing, isolation, or back formation. To establish the etymology of a word means including all the available comparative evidence, all Gmc. cognates and all those from other IE languages (6.5); the treatment has, of necessity, been more isolating than synthesizing. Loans into Gmc. from Lat., Gk., and other languages become only part of Gmc. linguistic history from the time of their borrowing on. Some words seem to have moved particularly freely from language to language ('Wanderwörter').

Semantic changes of words are reflected by changes in the frequency of incidence and in the character of the texts they occur in; by changes in their immediate environment (phrases, 'idioms,' affixes, compounds, co-occurring lexical items) and in their general environment (e.g. occurrence in certain types of poetic texts only). We find expansion, reduction, shift (alteration) of contexts. Another language (e.g. Lat.) may be responsible for some such changes ('loanshifts'). The expansion of contexts may lead to semantic splits so that the words can be considered to be several homonyms. Semantic changes of words can often be determined by extralinguistic factors such as cultural changes. New Sachen introduce also new Wörter (Hoenigswald 1960: § 3.7).

4.3 Space and diachronic analysis

In historical linguistics it is important to place language data in their specific spatial setting. Extralinguistic factors often provide clues for the localization of texts which contain the linguistic phenomena. The origin and history of the manuscripts, the biography of scribes and authors, known facts of external political, tribal, and ecclesiastical history help

in linking language data to historical area and space. Place names (3.3.2) and sometimes personal names carry their specific areal designations. The location of inscriptions and manuscripts does, of course, not reveal the original habitat of author and scribe. Since the end of the 19th century the findings of dialectal geography, which has been studying speech variation in its spatial expansion, have taught us to expect linguistic differentiation as areally determined. Dialectal distribution of features has been used to postulate or confirm intermediate stages of sound changes, e.g. the existence of a Swabian [ɔɪ] in the change of MHG *ī* to NHG *ei* (4.2.1). Areal distribution has revealed the effects of homonymy on the lexicon and in onomasiological isoglosses also various conditions for polysemy of single words (4.2.4).

Diagraphic study of texts has shown the spread of orthographic (= phonemic ?), morphological, and vocabulary features; time differences (4.4) for the evidence in the various areas clearly indicated at least the general direction of the spread. Even when such specific documentation was lacking, conclusions as to origin and spread by borrowing were sometimes drawn based on occurrence in peripheral or central areas or the areal distribution of more general or more limited changes. Phonemic discrepancies in the lexicon cannot be an argument against the regularity of sound change but reflect borrowing of specific items (4.2.4). Observations of linguistic change going on at the present time can provide valuable insights. 'Diatopic' comparison of the features of the phonemic pattern can lead to a reconstruction of pre-stages (see 6.2.4).

4.4 Time and diachronic analysis

4.4.1 Relative and absolute chronology

All diachronic analysis implies also placing linguistic changes into time. The setting up of 'periods' (1.2) in the historical development has been an attempt to break up a continuum, not only for descriptive convenience. The distinction between at least two periods in the Gmc. proto-language is an application to prehistoric data (cf. 7.1.3). Scholars like van Coetsem (1956), Lehmann (1961), Antonsen (1965) have insisted that only linguistic developments be used to delimit linguistic periods. The relative sequence of changes in time has seemed very important because causal factors of these changes (4.6) were often an issue there. The assumption of a certain relative chronology was frequently based on synchronically extant alternations. The ON presence of long-stem forms with umlaut *(gestr; neſnþa, dømþa)* and short-stem forms without umlaut (*staþr; talþa* from *telia*, *flutta* from *flytia*) was explained by E. Sievers as

NGmc. (unlike WGmc.) syncope after short stems preceding syncope after long stems, the first causing Rückumlaut, the second phonemic *i*-umlaut. The Axel Kock-theory opposed to Sievers' operates with the relative chronology of three different alleged umlaut-periods (Penzl 1952: § 3.2). Also in parallel changes there may be a time difference regarding the phonemes involved.

Absolute chronology is mostly linked to the dates of composition and transmission of the texts which can be established by internal and external (extralinguistic) evidence. Documents may have actual composition dates; literary monuments may have references such as dedications and the like, to historical personalities whose biographical data we know, or to known historical events such as migrations, e.g., of the Saxons, Angles, and Jutes to England in the fifth century. The facts of external history, generally speaking, can never be ignored in diachronic linguistic descriptions.

Even for prehistoric periods (cf. 7.1.3) absolute, although rough dates are proposed, e.g. for PGmc. (early PGmc.) about the middle of the first millenium B.C. (500 B.C.), for common Gmc. (late PGmc.) the second or first century B.C.

Name evidence has been used for dating, often without proper caution. The facts of external history may reveal the absolute biographical dates of a person or approximately the settlement dates of a place, the dates of ethnic contact, but the recorded shapes of personal names do not necessarily reflect the development at or after the time of adoption. Thus, they cannot be used for any kind of absolute dating of historical sound changes. The MHG name *Etzel* for the 5th century Hunnish leader does not show that the OHG consonant shift of **t* and the *i*-umlaut were completed *after* the 5th century: sound substitution of foreign material, instead of sound imitation, can occur at any time (3.5). The use of cultural loanwords for absolute dating on extralinguistic grounds is equally difficult, e.g. OS *hanap*, ON *hampr*, OE *hænep*, OHG *hanaf* with shifted **k* from Gk. *kánnabis* 'hemp', for which the date 400 B.C. is assumed for the adoption in Gk.

4.4.2 Glottochronology

A technique used synchronically for exploratory comparison of languages (6.5 'lexico-statistics') and diachronically for the date of prehistoric separation of related languages or the date of their proto-language (7), was based on lexical replacement changes and consisted of counting the number of cognates found in a 100 or 200-item 'basic' vocabulary. Already in the eighteenth century such comparisons of basic vocabulary were

carried out. The modern technique developed from the 'inspection method,' which involved the inspection of a few hundred words of like meanings culled from a great many languages covering a large geographical area to determine similarities and dissimilarities in form and meaning, e.g. by Albert Gallatin for American Indian languages and by Major Powell (Haas 1969: § 4.21f.). The theoretical assumption, for diachronic study, of an average constant rate of lexical change over long periods of time was proven to be erroneous, expecially by the research of Bergsland and Vogt (1962). For the attested, comparatively brief history of Gmc. the large margin of error (Hockett 1958:534) that had to be assumed in the formula (Arndt 1959) showed it to be of no independent, practical value, even if the method were not theoretically unsound.

4.5 Connection of linguistic changes

4.5.1 Interrelation of types of linguistic change

Description and analysis of all types of linguistic change has to include the possible relation to other changes. The very concept of 'analogy' in morphological changes suggests the possible triggering of one change by another and a relation between various types of linguistic change (4.2.2). Sound change can result in morphological change and lexical changes, morphological change in turn in syntactic changes. To observe and recognize such interrelation does, of course, not mean accepting the theory of morphological conditioning of all sound change.

4.5.2 Push chains and drag chains

In the description of linguistic change, consideration of systems and patterns rather than isolated items necessitates close attention to the connection between various phonemic changes, even if causality (4.6) is not the issue. Martinet's concepts of 'push chain' (German: Schub) and 'drag chain' (German: Sog) prove highly useful even without any teleological interpretation. Push chain implies that one sound change triggers another, resulting in a phonemic pattern with equal or better balance and integration. Here the importance of relative chronology (see 4.4) becomes clear. The OHG diphthongization *($\bar{e}$ > ea, ia, ie; $\bar{o}$ > oa, ua, uo)* follows the result of the OHG monophthongization ($ai > \bar{e}$; $au > \bar{o}$); no merger takes place. A push chain linking the two changes seems to be involved (Penzl 1971: § 13.6). On the other hand, if some sound change has left an imbalance, 'holes in the pattern,' a drag chain may result in partly or totally filling this gap. The OHG shift of the Gmc. 'mediae' *(*d > t)* follows the OHG shift of Gmc. 'tenues' *(*t > tz, zz)* (Penzl 1971: § 17.6).

4.6 Causality

4.6.1 Individual linguistic changes

We can state that in the description of each linguistic change we have to list all factors that seem to have favored (or impeded?) that change. This was often referred to as the 'explanation' of that particular linguistic change. In the case of the so-called 'conditioned' sound changes with clear-cut limitations (4.2.1) the task is not finished if this conditioning is described in detail. 'Explanation' of so-called 'spontaneous,' not overtly conditioned changes consisted often of pointing out certain universal features of human articulation, such as the shape of the human oral cavity with more space in front. Often the change was put within the frame of an all-pervading phonetic tendency controlling all the 'sound laws' of the language: the *drift* of Sapir and Prokosch (1939:36f.). A general trend may be named specifically as responsible, e.g. the Gmc. concentration of stress on one syllable causing umlauts, Auslautsgesetze, syncope, apocope, and the like (cf. also Sigurd's [1961] 'code shift').

Internal factors derived from the function of language for human communication were cited to account for a tendency toward optimal, i.e. symmetrical, well-balanced phonemic patterns (4.5.2), and an optimal grammar and lexicon (e.g. in the prevention of homonyms: 'Homonymenfurcht'). The role of functional yield or load was explored as a possibility. Borrowing, such a common factor in lexical change, could figure in other types of linguistic change as well, and could be due to the spread from a language in another but adjacent area or to a coexistent foreign language in the same area. Such 'substratum' explanation seemed particularly pertinent if supported by the facts of external history, e.g. the Frankish conquest of France, etc. One central problem often appears to be 'actuation' of a given linguistic change. Scholars have attributed some instances of consonant gemination to 'expressiveness,' resulting in a kind of sound-symbolism (Loewe 1933: § 1.93ff.).

4.6.2 General cause of linguistic change

The attempt to find one general cause for linguistic change is often linked to the explanation of individual linguistic changes (4.6.1).Particularly for prehistoric, but for historical changes as well, various extralinguistic causes were advanced: psychological, geographical, climatic (ecological), physiological causes. The transfer from one body of speakers to another (substratum) or from one generation of speakers to another was frequently blamed for all change in language. The latter theory

would make children the most successful but unaware innovators. Some scholars assume multiple causes, indeed a whole web of causes for linguistic changes. The important role of sociological factors, always recognized for borrowing and lexical change, as one of the principal reasons of linguistic change in general and for specific changes besides, cannot be clearly ascertained for Old Gmc. times since we generally lack pertinent information as well as sociologically ordered data.

5. Methods of internal reconstruction

5.1 Internal and comparative reconstruction

The attempted recovery of the prehistory of each language is called 'reconstruction.' As pointed out above (2.4, 2.5), our procedure can combine reconstructing on the basis of each individual language and comparing these individual reconstructions (6). The exclusive use of 'internal' data of one single language has been named 'internal reconstruction' (Bonfante 1945; Kuryłowicz 1964; Hoenigswald 1960); the comparison of corresponding material in cognate languages is referred to as '(comparative) reconstruction.' Both methods are not mutually exclusive but can and should be jointly applied, and their results should confirm each other. Perhaps the maximum and thus optimal use of the data of each language suggests internal reconstruction. Without including comparative material, however, this reconstruction can most of the time only lead to a stage immediately preceding the historically attested stage. These stages or periods we can label pre-Go., pre-OHG, pre-OE, etc. Such pre-stages may be differentiated from proto-stages based on comparative data. Also internal reconstruction concerns all possible linguistic aspects: sounds, forms, syntactical patterns, lexicon.

5.2 Internal reconstruction procedure

Internal reconstruction makes use of all types of morphophonemic alternations. This reconstruction of 'underlying forms' is often suggested as the 'explanation' for synchronically extant allomorphs or isolated relic alternants. Alternating phonemes may represent allophones of an earlier stage. 'Nonproductive' forms are more likely to represent the older layer than productive forms. Internal reconstruction also makes use of distributional anomaly or skewness (Pike 1950:14). Transformational-generative theory derives morphophonemic alternations from single underlying forms for which not an historical but a synchronic reality is postulated, since native speakers are believed thus to 'reduce

the information to be stored in their mental copies of the lexicon' (Sampson 1970: § 6).

Reconstruction has to consider the phonetic and typological likelihood of any sound change leading to the attested oppositions, alternations, and distributions. The various types of phonemic change cannot all be reconstructed with the same ease. Phonemic loss can be reflected in distributional skewness, phonemic split in morphophonemic alternations (Hoenigswald 1960: § 10.1), phonemic shift in 'relic forms.' If the conditioning environmental factors are no longer visible in any form, internal reconstruction may be difficult or even impossible without the help of comparative evidence. The conditioning may not be the immediate environment (e.g. Grassmann's law), and it may not be segmental (Verner's law).

The operation of phonemic change may be recoverable in the shapes of morphological alternants. Much more difficult is the recovery of analogical remodeling of morphological or lexical entities. Sometimes existing historical 'doublets' can help. Kuryłowicz (1964) has shown how the distribution of morphemes within the system offers important data for internal reconstruction of their original derivational (lexical) or grammatical meanings (functions). To him internal reconstruction meant also renouncing any collaboration with dialectal geography or 'auxiliary sciences like experimental phonetics, psychology, or cultural anthropology.' On the whole, the method of internal reconstruction favors deriving a variety of morphological and syntactical patterns or meanings of one lexical form from less varied, preferably single pre-forms or pre-patterns; this procedure seems valid if comparative data support it.

5.3 Abstract formula or history?

The question of the status of reconstructed phonemes, morphemes, syntactical patterns, lexemes is pertinent. A starred linguistic item has variously been defined as a mere formula, an abstraction without any reality; an 'approximation to history' (Gleason); a kind of phonemic diagram of the ancestral form (Bloomfield 1933: § 18.5); an underlying historical form, even a descriptively relevant form (King 1969). For items internally reconstructed on the basis of attested alternating forms, the level of abstraction seems quite low. Setting up 'starred' forms of this type may mean tentatively filling gaps in our historical data, not only preceding attested material but between attested stages of historical development. Such starred forms can in turn be examined by means of an 'inverted' reconstruction (Hockett 1958:512ff.), on the basis of other starred forms arrived at by comparative reconstruction, e.g. pre-OHG

and PGmc. forms. The commitment to 'reality' and its recovery applies invariably (3.1.1).

The use of socially variant forms within the same speech community and of stylistic variants within one idiolect, is still internal reconstruction. The use of subdialects and dialects of one language for the reconstruction of unified pre-forms or a 'diasystem' is somewhat closer to 'comparative' reconstruction. The 'reality' of internal reconstructions is also determined by the degree of agreement of the data and by considerations of phonetic and typological, possibly extralinguistic (historical) plausibility. Transformationalists consider internally, by 'phonological rules,' constructed forms as the real systematic deep structures underlying the attested surface forms (6.2.4).

6. Methods of comparative reconstruction

6.1.0 Comparative reconstruction

Comparative reconstruction is, as stated above (2.5, 5.1), a method involving several related dialects or languages. Their corresponding phonetic, phonemic, morphemic, syntactical, lexical items and sets of items (patterns) are matched (compared) and genetically derived from a proto-language. Some such correspondences may turn out to be irrelevant if they are due to borrowing (mutually, unilaterally, or from a common later source), parallel but independent development, i.e. a polygenetic origin, or even chance resemblance. Definitely unrelated languages show examples of the last type, which can be statistically expected. All correspondences that are not due to such relatively late origin we take to be features of the proto-(ancestral, parental) language. In our case it is PGmc. (formerly also called 'Primitive Gmc.,' translating Urgermanisch) which we thus 'reconstruct' on the basis of the shared features of the Gmc. languages, particularly their oldest stages. Proceeding from them by internal reconstruction (5), we are usually able to reconstruct prehistoric stages immediately preceding them, which we can in turn compare to the proto-language. The goal of comparative Gmc. linguistics (2.5) has increasingly become the historical analysis of the background of extant early Gmc. languages rather than the specific description of the details of the proto-language; opinions will vary as to the degree the proto-language 'explains' features of the daughter languages, and its description should remain the focal point. The character of the proto-language, its alleged uniformity varies in importance according to the degree of emphasis we put on the ultimate reconstructed stage (cf. 6.1.2).

When we consider in Gmc., as in the reconstruction of the prehistory

of other languages, the distribution of identical (shared) and differing features, we may on purely linguistic grounds arrive at a 'sub-proto-language' for part of the related and compared dialects, e.g. WGmc. (7.1.2). The comparison of all dialects will yield a proto-language, often called common Gmc. (Gemeingermanisch), which is distinguished from a still earlier PGmc., also set up in comparison with the non-Gmc. data of the super-proto-language IE (6.1.3; also 7.1.3). It is a moot question to what extent comparative prehistoric linguistics should in its procedures take into account the results of other disciplines.

6.1.1 The procedure of reconstruction

Linguistic textbooks have described the actual procedure of comparative reconstruction, e.g. Bloomfield (1933: chapter 18), Hockett (1958: 487 ff.), Lehmann (1962: 83 ff.). Word-forms similar in shape and preferably quite identical in meaning are collected from the lexicon of the languages to be compared as presumable cognates. The comparison of the oldest available forms like Ru. *staina* (acc.; Rö), ON *steinn*, Go. *stains*, OE *stān*, OFri, OS *stēn*, OHG *stein* 'stone', yields from the sets of correspondences in specific positions, which must be noted (*s s s*, etc; *t t t*, etc; *ai ei ai ā ē ei; n n n*, etc.), a proto-form **stain-* 'stone' with the nominative inflectional ending **az* (Ru. *aR*, Go. *s*, ON *nn* < **nR;* WGmc. Ø). Inverted reconstruction from IE data confirms initial **st* (IE **st*), a 'formative' suffix **no* (3.2.4.) and the inflectional **az* (< IE **os*) with case-ending and preceding stem-class (thematic) vowel. The vowel differences as reflexes of PGmc. **ai* prove to be results of regular sound changes in the individual languages, e.g. **ai* > OE *ā*, etc., since they are found in many other corresponding sets. Thus the rules of phonological correspondence can be applied in an exact way. The procedure of reconstruction usually first involves single items, not systems. It seems atomistic but adding each item to other parallel, individually reconstructed items, yields reconstructed patterns and systems as the sum total.

The reconstruction in Gmc. is aided by multiple language and diachronic attestations (e.g. OHG, MHG *stein*, NHG *Stein*) which permit the recognition of specific sound changes. In languages which lack this type of evidence, general assumptions about types, phonetic probability, conditioning, direction of sound change must be used in setting up proto-forms, e.g. that fortis between vowels is more archaic than lenis, clusters can be more archaic than simple consonants, zero in one dialect can mean loss of a phoneme, etc. (Pike 1950).

Our example (PGmc. **stainaz*) was based on the comparison of full word-forms containing root and inflectional ending. Meillet (1967: 52) has

questioned the value of a type of comparison carried out with 'small root elements' or even 'no more than fragments of roots.' Most scholars demand, indeed, that also the reconstructed forms resemble real speech forms.

6.1.2 Character of the proto-language

The comparative method in its regular application yields a uniform proto-language without any dialectal variation. Only irreconcilable differences between parallel features of the related languages will force the recognition of a diversity in the proto-language. The method calls for describing plurality as derived from an original unity. The irreconcilable differences can only be morphological, syntactical, and lexical, not phonological.

Among constraints postulated for the proto-language are: it must conform to the universal features of attested human languages, and it must 'resemble' the daughter languages in its characteristics. The reality of the proto-languages as reconstructed has been viewed with varying confidence ranging from a complete denial to optimistic acceptance. This confidence differs concerning the various aspects of the language. Acceptance of proto-phonemes (6.2) and their pattern seems easy, since we are dealing with abstract, schematized units. Single word-forms and single morphemes, which can be reconstructed, are also apt to be accepted without difficulty (6.5). Much more difficulty prevails in the acceptance of morphological (6.3) and syntactical (6.4) patterns, also in regard to semantic correlates of word-forms (6.5). Thus, few scholars would care to compose texts in a proto-language (see 6.4).

In the case of 'Proto-Romance,' we have in VLat. an example of a fairly close equivalent to an attested proto-language for the Romance languages. It is understandable, therefore, that Proto-Romance figures prominently in discussions of comparative methodology. The deficiency of the attestation still leaves lots of gaps in our reconstruction, which are regarded from very serious (by Pulgram 1961) to hardly significant (by Hall 1960).

The relative significance of the respective evidence in the daughter languages for the proto-language is an important question. All shared features are important; but so are all deviations if they cannot be resolved by diachronic analysis as a subsequent development or change within the branch language itself. Anomalous or unique features, relic forms, skewed distributions, may provide valuable information for the proto-language, often more so than 'regular' distribution and forms. The genetic explanation of commonly shared features may lead to projecting all those features into the ancestral language that are compatible and can thus coexist in 'over-all' patterns or systems.

6.1.3 'Inverted' reconstruction

Ordinarily, what is not in the daughter languages cannot be assumed for the proto-language, since the comparative method cannot deal with a total loss without residue. The question of assuming any lost feature for the proto-language would not even come up, if one branch proto-language, e.g. PGmc., were not to be compared with other related languages, other branch proto-languages (Proto-Celtic, Proto-Italic, Proto-Indo-Iranian, etc.) and features of the super-proto-language derived from the comparison of all the branches (PIE). In 'inverted reconstruction' items of the proto-language of the second order (PGmc.) are compared to those of the proto-language of the first order (PIE), which was also derived from it, and corrections and additions in the secondary proto-language (PGmc.) are made on the basis of the correspondences obtained this way. The differences between the results of inverted and regular reconstruction are explained by the assumption of change within the proto-language and as reflecting two stages of it with a time difference: PGmc. (or early PGmc.) and common Gmc. (late PGmc.) (6.1.0). The features of the PGmc. stage can be confirmed by an internal reconstruction from the common Gmc. features (see also 6.1.4) and IE features the same way from PGmc. There can be no objection against the comparison of two reconstructed stages as, e.g., PGmc. and IE.

6.1.4 Reconstructions from reconstructions

The super-proto-language (e.g. PIE) is reconstructed on the basis of the (secondary) proto-languages of the various branches (daughter languages), which themselves are based on the individual 'pre-languages' (5) derived from the actually attested languages. The features of the primary proto-language (IE) are important to us in comparative Gmc. linguistics because we have to extend and apply our reconstructed data also to all languages we know to be related to Gmc. (6.1.3).

But even a primary proto-language will contain reconstructed features such as morphophonemic alternations, distributional skewness, morpheme shapes that allow an application of internal reconstruction the same way as we can apply it to late PGmc. to reach an earlier PGmc. level (6.1.3). Lehmann (1952) has shown in his account of PIE segmental and suprasegmental phonology how many deep-level reconstructions can be obtained by comparing reconstructions. The use of double stars, triple stars, etc., to mark second and third level reconstructions would seem a desirable practice. The uniformity demand for the proto-language seems pertinent, since even apparently irreconcilable differences can be pursued to a satisfactory level of uniformity.

For IE morphology, deep-level reconstruction has been really a common practice but often quite speculative (6.3.2). Convincing seem e.g. such reconstructions as IE **ns* (acc. pl.; Go. *dagans*) from ***ms* (acc. ***m* + pl. ***s*) because of IE **m* (acc. sg.). Not only specific rules for IE root structure were postulated, but also the derivation of inflectional endings from free morphemes through a more synthetic (agglutinative) stage. Explanations of the origin of grammatical categories usually attempt reconstructions at levels far removed from the one obtainable by reconstruction from attested language forms. Such assumptions as the one of laryngeals lost in all attested stages of IE languages except in Hitt. (6.2.6) or of a phonotactically uniform structure of IE morphemes, seem to refer mostly to a pre-proto-stage of IE or at least to one immediate level below the reconstruction obtained by comparison. The Hitt. evidence was used to postulate an 'Indo-Hittite' proto-language, from which, however, only few features of PIE itself could be genetically derived (7.2).

6.2 Comparative phonological reconstruction

6.2.1 Starred symbols

The basic reconstruction in comparative linguistics is phonological, because without it the shapes of forms (6.3), groups of forms (6.4), lexical entities (6.5) cannot be compared: only phonological correspondences permit reconstructions of a higher order. A linguist's choice of starred symbols for proto-values is usually intended to convey the approximate phonetic value, particularly if a symbol of the Lat., Gk., IPA system is used (Prokosch 1939:35f.). This is conceded even by scholars who stress the formulaic character of their reconstructions.

Even if a universally valid matrix of distinctive features ('grave/acute,' 'compact/diffuse' etc.) is considered relevant rather than their combination ('as a bundle'), for practical convenience cover-symbols could never be dispensed with.

6.2.2 Phonetic interpolation

Diachronic analysis (4.2.1), particularly if the gradualness of sound change is strongly stressed, resorts to the construction of 'intermediate' values between two stages that can be phonetically identified. Sometimes those values are selected that would have prevented merger or collision between adjacent phonemes. Sometimes typological and general considerations of universal or specific probabilities of sound changes are factors in the reconstruction.

Phonetic interpolation is frequently practiced also in the reconstruction of prehistoric values, and based on the comparison of the diachronic development. For values [ph] in language A and [b] in language B a common proto-value *[bh] seems reasonable. The same holds for Go. [ē], OHG, ON [ā] for an assumed PGmc. *[ǣ] (Prokosch 1939:99) or in inverted reconstruction for an assumed early PGmc. *[ɔ] between IE *[o] and late PGmc. *[a] (van Coetsem 1970:43) or */ɔ̄/ as the result of the merger of IE */ā/ /ō/.

6.2.3 Recovery of allophones

Allophones must be assumed in prehistoric reconstruction, or the diachronic development resulting in multiple differentiation cannot be explained, since we attribute most types of phonological change to the development of allophones. All types of 'umlaut' must have had their beginning in the late PGmc. allophonic variation of accented vowels influenced by following vowels in weak-stressed syllables, a feature which Meillet considered 'un-IE.' Allophones not immediately resulting in phonemic change can still be assumed on the basis of typological considerations and modern reflexes, e.g. in OE, OHG [ŋ] before velars for /n/. The principal evidence for reconstructed allophones is always diachronic; historical splits, mergers, losses, shifts provide proof for original allophonic variation. Morphophonemic alternations can reflect them.

6.2.4 Phonemic patterns

Reconstruction of proto-patterns seems to provide an example of some structural thinking even before the days of linguistic structuralism. The very necessity of abstracting from the data and arranging according to relevant features within a framework makes purely atomistic treatment rather unexciting. General patterns and systems have seemed more easily recoverable (Moulton 1954). Also viewing diachronic change as a change from system to system (IE > PGmc.; PGmc. (early PGmc.) > common Gmc. (late Gmc.); common Gmc. > WGmc.; 7) or pattern to pattern, appeared quite acceptable for prehistoric reconstructions, presumably because specific details were out of reach, anyhow.

In setting up a proto-pattern, pertinent typological considerations (6.1.2) are based on the observed patterns of the daughter languages, their distinctive features and phonetic realizations, and are modified by universal or near-universal constraints for patterns. This militates e.g. against deep-level reconstructions of a pattern with one solitary multi-asterisked Proto-proto-proto-IE Urvokal.

The comparison of features, including those of the phonemic patterns, also in a spatial setting (4.3), can be a valuable help in the reconstruction of proto-stages and proto-changes (6.6). The consideration of the total pattern enters even into synchronic phonetic identification (3.2.2).

Morphophonemic alternations are not only important for internal reconstruction (5.2) but also for comparative treatment. Van Coetsem (1956) arranged on the basis of root structure and extant alternations the six ablaut series and the reduplicating class of the Gmc. strong verb into an *e*-group (**greip-*, **beuđ-*, **benđ-* etc.) and an *a*-group (**xait-*, **xlaup-*, **xald-* etc.). Morphophonemic alternations are essential in generative-transformational theory for the recognition of systematic phonological deep-structure forms underlying the surface forms with their phonetic features.

6.2.5 Suprasegmentals

Suprasegmental or prosodic features include, as usually defined, stress, pitch, duration, also Grenzsignale ('juncture'). Evidence for them comes in historical linguistics mostly indirectly from segmental distribution and change. Gmc. word-stresses are reflected by alliteration practices and later vowel reduction and losses: e.g. Notker's types *áhtoti*, *áhtôta*, *áhtotôn* (Valentin 1969:251f.); pre-Gmc. word stresses are shown by the effects of Verner's law (grammatischer Wechsel), e.g. Go. *þarf*, pl. *þaurbum; -saizlep* and *saislep*. The obvious importance of first-syllable stress in Gmc. for segmental changes stimulated interest in the reconstruction of suprasegmental features. A role for pitch or duration has been assumed for the development of vowels in Gmc. weak-stressed syllables subject to the so-called Gmc. Auslautsgesetze (Hirt 1931:§ 84; Streitberg 1896:§ 152). But for the alleged distinction between circumflected-long versus acute-length vowels outside of the stem (Go. *gibos* gen., *giba* nom. < IE **-ās*, **-ā*), non-Gmc. parallels such as Gk. orthography and Lith. modern vowels are suspect as probable later innovations.

Sievers with his Schallanalyse has been quite isolated in attributing all allophonic variation and thus most sound-changes to intonation, i.e. pitch movements. The alleged connection between pitch and qualitative ablaut **ĕ/*ŏ* in PIE refers to a deeper level not susceptible to reconstructional recovery from the attested sources (6.1.4). The role of pitch in PGmc. is not clear. The origin of Scand. word-pitch distinction, e.g. in Swed. *anden* 'the duck' and *anden* 'the ghost', has been attributed to later morphotactic changes.

6.2.6 The laryngeals

Complete loss of features cannot be recovered by the straight comparative method but sometimes by its inverted (6.1.3) application. Does this apply to the famous laryngeals? The actual discovery in Hitt. of two 'laryngeal' consonants, already postulated by Saussure in a deep-level reconstruction of IE ablaut, necessitates their recognition within the early IE system (for 'Indo-Hittite,' see 6.1.4, 7.2). This makes the question of their survival or indirect reflexes in PGmc. quite legitimate. An influence of laryngeals has been assumed in the explanation of some Gmc. sound-changes that lack evidence for reasonable conditioning, e.g. the Verschärfung. The pre-proto-character of the reconstructed laryngeals (6.1.4) resulted in frequent algebraic notation and minimal phonetic identification, e.g. only by alleged effect on vowel quality.

6.3 Comparative morphological reconstruction

6.3.1 Reconstruction and analogy

The comparative method can establish morphophonemic alternations and the influence of sound change on the morphology. Analogical changes do not operate with such regularity as 'phonetic laws,' thus the comparative method is really not an adequate instrument for their recovery. Analogical leveling or spread is never absent from morphological change. Sufficient data are lacking for the detailed reconstruction of circumstances and factors leading to the most significant Gmc. innovations such as, e.g., the formation of the Gmc. weak preterit, the systematization of ablaut in the strong verb, the development of two inflection types for the adjective, and the relation of the strong adjectival inflection to the pronominal endings. Observed morphological changes (4.2.2) must aid us in our reconstruction.

The comparison of morphological (grammatical and derivational) items is carried out the same way as that of lexical forms (6.1.1 above), but the entire morphological set and system must invariably be included and considered in the reconstruction of proto-forms. Already some synchronic morphological segmentation (3.2.4) may have suggested underlying proto-forms. The origin of general grammatical subcategories, e.g. the case system, etc., cannot be reconstructed within any branch protolanguage like PGmc.

6.3.2 Pre-proto-reconstructions: the 'Wurzel-Periode'

As mentioned above (6.1.4), scholars have, particularly in morphology, attempted to recover deeper prehistoric levels by going beyond and starting out from the reconstructable IE stages. Frequently this attempt seems to be motivated by the opinion of some scholars that the 'fusion'-type of IE morphology developed from an earlier 'agglutinative' type of inflection, and this one in turn from an earlier 'isolating' type of word-structure. At the agglutinative, synthetic stage all parts of word-structure, i.e. all affixes and endings, were assumed to combine freely, indicating specific and stable grammatical meanings. For the earliest stage the independent existence of usually monosyllabic Wurzeln (roots) was assumed. According to this theory, the free morphemes of the earliest (isolating) stage became the bound morphemes, e.g. case endings, verbal endings, formative elements of the second stage. We have no evidence from the historical periods, however, that could prove that all or even most bound morphemes (endings) must have developed from independent morphemes (words). The comparative method certainly cannot take us that far back through any 'internal reconstruction' from the IE reconstructed morphology (6.1.4). No definite light can be thrown on the rise and origin of grammatical categories and the 'original' meaning and link of any specific morphemes to them. Comparison between inflectional or personal endings and certain pronominal forms cannot yield specific reconstructions; but various similarities have been pointed out: e.g. *s* in Go. *dags*, *sa; m* in OHG *salbom*, *mih*, etc. (Hirt 1932:9, 133f.).

6.4 Comparative syntactic reconstruction

The comparison of the rules of ordering within phrases and the sentence, of sentence and phrase patterns, and of the selection of nominal (case, number) and verb (tense, mood, voice) forms and function words in the oldest stages of the Gmc. languages, results in the syntax of PGmc. (3.2.5). All later syntactical changes within the Gmc. languages have to be taken into account in the reconstruction (4.2.3).

Hall (1960), believing that for comparative reconstruction Proto-Romance (6.1.2) can be a testing ground, considers, like Schleicher, the writing of reconstructed texts quite feasible. But Ellis (1966:107) agrees with Allen (1953:78f.) that no 'starred sentences' are possible, only 'starred words in starred relations', since there are no 'starred contexts' at the various levels to make them into utterances.

Modern transformation theory formalizes old attempts at reconstructing beside a PGmc. 'surface' syntax also underlying PGmc. (pre-Gmc. ?) deep-level syntactic structures to be related by transformation. A general

parallel exists in the application of internal reconstruction to reconstructions (6.1.4). The obvious advantage to this approach is the possibility of interrelating many syntactic features. Inverted reconstruction from IE (6.1.3) is important for this procedure (Hirt 1934:8f.). No speculation as to the basic grammatical meaning of categories (6.3.2) and the like, need be included.

6.5 Comparative lexical reconstruction

For the phonological use of lexical correspondences for reconstruction, semantic resemblance but not necessarily identity, is a condition. If we recognize the operation of commonly attested semantic changes (4.2.4), the use of semantically somewhat divergent material is quite feasible for direct comparison. We have no special comprehensive Gmc. etymological dictionary as yet besides the etymological dictionaries of most of the single old Gmc. languages (Go., OE, OI, Old West Nordic) and their later stages (NHG, MnE, MnDu.) and besides the IE etymological dictionaries (Walde-Pokorny 1927–32, Pokorny 1969) and one onomasiological dictionary (Buck 1949). The setting up of lexico-semantic roots or bases (Wurzeln, cf. 6.3.2) with certain additions to the reconstructed basic shape ('determinatives;' Hirt 1932:6–11), has only been attempted for PIE, not for PGmc. The reconstruction of an original basic meaning of lexical entities is still easier than attempts to postulate original grammatical ('inhaltsbezogen'), preferably uniform meanings of morphological units (6.3.2, 6.4).

The study of the 'etymology' of words, i.e. of their origin and development, necessitates use of all comparative data. The diachronic observation of semantic variation, opposition, suppletion, interference (contamination), and the semantic splitting off of lexical variants in the merging of lexical units, provides a parallel to the analysis of diachronic phonological change, and must precede the reconstruction of the original lexicon (Benveniste 1954).

Lexico-statistical accounts (4.4.2) of the vocabulary of the various Gmc. languages would, in spite of, or rather because of their questionable quantification of linguistic data, be hardly useful. The common core of the Gmc. vocabulary as assumed for the PGmc. period (Torp–Falk 1909; Stroh 1959) can be interpreted in extralinguistic fashion as speakers of PGmc. (Lehmann 1968 b). The relationship 'Wörter und Sachen' indicative of cultural, ecological, and organizational factors among the is undeniable. The principal concern of comparative linguistics are the Wörter, however (2.7). Clues have been frequently sought from the shared vocabulary for the Urheimat, the ancestral home of the Gmc. tribes, and its location and geography. If the Urheimat could be established in such a

way, its knowledge could help in determining and evaluating spread, origin (substrata?), and distribution of Gmc. innovations (4.3) by the methods of dialectal geography.

6.6 Reconstruction of linguistic change

Comparative linguistics deals with linguistic change in each of its phonological, morphological, syntactical, lexical reconstructions. The emphasis of the description may be put on the respective stages or states (e.g., pre-OHG; WGmc.; PGmc.; pre-Gmc.; IE), but the assumption of probable, historically attested types of change as found through diachronic analysis (4), is an inevitable condition for reconstruction.

Specific phonemic changes have frequently been separately reconstructed and described in all their aspects, i.e., their terminal and initial stages, intermediate stages, relation to other changes, morphophonemic results, time and place, causality. In Gmc. the changes known as Grimm's law, Verner's law, certain vowel-changes including umlaut, the OHG consonant shift have a sizable literature of their own.

Initial and terminal stages were linked to discussion of the reconstructed phonemic patterns of PIE and PGmc. (6.2.4) and accent change (6.2.5); intermediate stages to relative chronology (4.4.1), spatial distribution (4.3) and also allophonic variation (6.2.3); the results to grammatischer Wechsel and other alternations; causality often to the discussion of sound change in general (4.6) or to such specific causes as external history, substratum, and other factors. Attempts were made to provide absolute chronology, also for the Ursprache, which was at first considered more or less timeless and without specific location (6.1.2).

Meillet (1967) has warned of the illusion of being able to reconstruct a complete and gapless history of changes within a language. He also (p. 61) stressed the fact that a good preservation of ancient usage does not prove a short lapse of time nor that an 'extensive change of forms presupposes a long interval of time.' If we believe this to be true, the assumption of glottochronology of a uniform rate of lexical change seems even more extreme.

For the description of linguistic changes there is no monopoly by theoretical models. Prehistoric Gmc. sound change was also described by the use of Jakobson and Halle's matrix of distinctive features and by ordered transformational rules (Voyles 1967; Weinstock 1968; King 1969).

7. Methods of grouping and subgrouping

7.1 Dialectal division of Germanic

7.1.1 Sub-proto-languages

Subgrouping of proven members of a language family is one task of comparative linguistics (2.6). One basis for such groupings is the comparison of the individual languages and their geographic position. Thus, essentially the methods of dialectal geography are used both in synchronic contrasting and in diachronic interpretation of the spatial distribution of the compared features as shown by the isoglosses (4.3).

In the comparison of features shared and not shared, the lack of any systematic technique of quantification is keenly felt. There is agreement, however, that certain differences are more significant than others, e.g., differences of inflectional morphology or of the phonemic pattern versus lexical (vocabulary) differences. From the point of view of comparative genetic linguistics, the essential distinction does not involve the relative importance of phonological, morphological, syntactical, and lexical differences (isoglosses) but rather the basic difference between features of the individual languages that are of later origin (innovations) and those which are retained features of the proto-language. There are the following possible explanations for shared features: preservation from the proto-language (versus loss elsewhere); later development of innovations through independent parallel origin; borrowing from one language by others; development in a common language community, i.e., in a 'sub-proto-language.'

Thus, grouping the Gmc. languages according to their respective similarities involves also possibly setting up sub-proto-languages, which were so freely assumed for Romance by Hall (1960), and rejected by Pulgram (1961), who accepts only one final proto-language. The division cannot ignore the time (period)-element, particularly since the data from our oldest Gmc. languages are not contemporaneous (1.2). Do the differences then reflect prehistorical grouping, perhaps the development from several sub-proto-languages as NGmc., EGmc., WGmc., which was the division traditionally assumed until recently?

The answer to this question is linked to one concerning the dialectal variation within the proto-language itself. The strict application of the comparative method can only yield one proto-language (6.1.2) with a minimum of dialectal differentiation in grammar and lexicon, none in phonology. Scholars who prefer to regard a proto-language as a dialectal complex may seem to increase its reality, but only a bare minimum of this alleged dialectal variation can be recovered by the available methods.

7.1.2 Subgroups in Germanic

Alleged sub-proto-languages (proto-languages of the third order) can easily emerge from our matching at first only some daughter languages linked by greater similarity or geographical proximity, and then expanding our reconstructions to include all daughter languages. Schwarz (1951), e.g., used the data of Go. and ON for Gotho-Nordic reconstructions thus postulating in effect a Gotho-Nordic sub-proto-language, for which he ignored many Nordic-WGmc. isoglosses, but could quote extralinguistic support from known early Scand. contacts. Features shared by OE and OFri. and those shared by OHG OS OLFra. were often attributed to earlier common speech communities called 'Anglo-Frisian' and 'Urdeutsch' (Proto-German), respectively, but usually not clearly defined as actual minor sub-proto-languages. The status of WGmc., as a sub-proto-language for all Gmc. languages outside of Go. and the Scand. languages, was based on many isoglosses (consonant gemination, Auslautsgesetze, etc.). Most handbooks have recently replaced it by the assumption of three dialect groups often just ethnically defined by the names of their speakers: the 'Nordseegermanen,' 'Weser-Rheingermanen,' 'Elbegermanen' (Maurer 1943; cf. van Coetsem 1970: § 3.33). Within this loose grouping western ('Ingvaeonic') and southern similarities could be distinguished without the necessity of referring them to a proto-language. Ethnic (tribal) history and prehistory based on literary and archeological evidence was largely used for the assumption of linguistic development. Only linguistic criteria can justify linguistic groupings, however.

The model for dialectal differentiation most commonly accepted is based on the expansion of speakers of an originally fairly uniform language over a large area with increasing loss of contacts between them. Methods of dialectal geography can be applied to such a model (but 2.7). The Stammbaum model suggesting sudden split-offs is oversimplified and rarely applies completely from the extralinguistic (historical) point of view; it does only to some extent in the case of Go. and in the development of OE from continental Gmc., since all contacts do not cease with separation. The Wellentheorie model refers to large-scale borrowing across dialectal areas; its usefulness for grouping would seem to be limited, accordingly.

7.1.3 Periods and proto-languages

Scholars rarely now assume timeless proto-languages. The problem of periodization in the history of languages is linked to the setting-up of subgroups. We usually postulate some diachronic development within the proto-language itself and assume an earlier stage (early PGmc.) and a

later stage (late PGmc., common Gmc.). These two stages are preceded by a still earlier and vaguer pre-Gmc. between IE and Gmc. (cf. also 4.4.1). Also for reconstructed language stages or periods, beginning and end must be indicated, preferably by using linguistic instead of extralinguistic criteria. For Lehmann (1961), PGmc. begins with the accent shift and ends with the loss of unstressed *e a* in final syllables; Grimm's law is in pre-Gmc. Similarly, van Coetsem (1956, 1970) attributed the accent shift to his 'second period' (i.e. late PGmc.), Grimm's law to the first period (early PGmc.; cf. Bennett 1972: § 1.2.3). Antonsen (1965) agreed essentially with Lehmann's division but postulated a 'NWGmc.,' for which e.g. the lowering of /ē/ to /ā/ was typical. Some scholars have preferred to use neutral terms like Prehistoric Germanic (used by Twaddell), (Old)Germanic, Early Germanic (Krahe–Meid 1969: Alt-Germanisch, Früh-Germanisch; van Coetsem 1970: Germanisch) for the period of the protolanguage.

7.2 Indo-European and Germanic

Some dialectal variation has been assumed for the uniform protolanguage IE. Gmc., to be sure, shares some specific features with Italic, Slavic, Celtic, and other IE languages. Gmc. is a 'centum-language,' i.e. PGmc. has regularly a single velar reflex of IE velar **k* and palatal **k'* just like Italic, Gk., Celtic; Gmc. has a dat. pl. with *m* like Baltic and Slavic, etc. Lexical similarities between Gmc. and neighboring IE languages are frequent.

The methods of dialectal geography have been applied to the distribution of these varying features when considering their historical locations in all the IE languages (4.3). Bartoli (1945), Bonfante (1945), and other Italian 'neolinguists' have projected the observed types of areal spread into prehistory, assuming, e.g., a central core of innovations and marginal (peripheral) preservation of archaic features.

The question of later convergence differing from earlier divergence, which led to the establishment of separate dialects, is complex. It is linked to the polygenetic explanation of such phenomena, as e.g. Gmc. *i*-umlaut or the OHG consonant shift, which opposes the monogenetic hypothesis of one single origin followed by gigantic spread from one center. Höfler (1955) has pointed out the (extralinguistic) lack of probability of such early grand-scale borrowing over huge distances without facilities of ready communication. No known linguistic methods can provide definitive answers to such questions involving prehistorical borrowing.

We can observe 'convergence areas,' e.g. in India at the present time. This factor could have prevailed in Europe in the case of Gmc. and other

IE languages. The problem of convergence versus divergence in proto-prehistory, i.e. beyond reconstructable PIE, enters into the Indo-Hittite hypothesis. Divergent Hitt. shows some features, e.g. the laryngeals, that reflect a pre-stage of convergent IE, but it offers insufficient data for reconstructing a new Indo-Hittite proto-language (6.1.4).

Our comparative method, rigorously applied, cannot establish any genetic relationship between IE and other language families (e.g. Semitic, Finno-Ugric). General structural or typological similarity, specific chance resemblances, borrowed features, even items with shared 'sound symbolism,' are not acceptable as proof.

Germanic and the other Indo-European Languages*

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Outline

1. The concept of Proto-Germanic 44
2. Components of the Germanic vocabulary 45
3. Brief survey of recent research 46
4. Germano-Balto-Slavic correspondences 51
5. Germanic-Baltic correspondences 55
6. Germanic-Slavic correspondences 58
7. Germanic-Latin-Osco-Umbrian correspondences 59
8. Germanic-Celtic correspondences 64

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* This essay is a provisional synthesis of a series of preliminary studies towards an extensive analysis of the position of Gmc. in the IE linguistic community, and its cultural implications. Part of it is a restatement of my contribution to the Third Indo-European Conference at the University of Pennsylvania in 1966 and of my paper at the Xth International Congress of Linguists at Bucharest in 1967. The section on Gmc. and Celtic is based on my paper published in *Ogam* in 1954. An expanded version of the section on Gmc. and Baltic will be published shortly. A thorough study of Slavic and Gmc. isoglosses will appear in the Hill-Festschrift. The section on Gmc., Lat. and Osco-Umbrian will be developed into a systematic review of the relevant isoglosses on the basis of the recent work of Molinari. Accordingly, bibliographical references are kept to a minimum and only the works referred to in the text are listed in the bibliography.

1. The concept of Proto-Germanic

Reviewing recent work on PGmc. and its position among the IE languages, Pisani (1965:41) stresses that the concept of a homogenous PGmc. is an *a priori* postulate. To claim that lexical items or grammatical forms of Go. and the Scand. languages which do *not* occur in the other Gmc. languages, but have correspondents outside Gmc., *must* originally have been spread over the whole Gmc. territory is a *petitio principii* for Pisani. He considers, indeed, that some of the isoglosses shared by all the Gmc. languages except Go., as for example the rhotacism of *z* and the pret. in $\bar{e}^2$ of the strong verbs of the 7th class, are not necessarily posterior to the departure of the Goths from their northern homeland. Similarly, he projects further into the past the differentiations within the southern area of the Gmc. territory, assuming, e.g., that Lat. *sāpō* (Plinius) indicates that the Ingveonic monophthongization of **ai* to *ā* had already been completed in the first century A.D. Though such views are extremely disputable in view of the recent searching studies on the diachronic development of the dialectal split of the Gmc. linguistic community by Schwarz (1951), Žirmunskij (1962), Lehmann (1966) and others, it is striking that quite a number of isoglosses link up only part of the Gmc. languages with neighboring IE languages. Thus, Molinari (1965) pointed out in her thorough re-examination of the lexical correspondences between Gmc. and Lat. and Osco-Umbrian, that Lat. showed closer links with NGmc., whereas Osco-Umbrian shared more items with Go. and OHG. Though it would be dangerous to put too much weight on these facts in view of the limitation of the available lexical material, both in Osco-Umbrian and in Go., one cannot fail to notice the similarity of this situation with that of Baltic, where the Prussian vocabulary shows particular correspondences with Gmc., whereas Lith. and Lett. share a larger number of common features with Slavic than Prussian does. The conclusion that Stang (1966:10–13) draws from this situation would also apply to Gmc.: Proto-Baltic has to be conceived as a language with some internal dialectal differentiation, and it might be more advisable to talk about a common Baltic dialectal territory. It is certainly not warranted to consider Gmc., with Pisani, merely as a plurality of dialects in which processes of convergence and divergence take place, and to emphasize its internal fragmentation instead of the impressive set of phonological and morphological features the Gmc. dialects share. The fact that, in the reorganization of the inherited heteroclitic declension, Go., ON, and Lith. followed parallel ways (e.g., Go. *watō*, gen. *watins*, ON *vatn* and Lith. *vanduõ*, gen. *vandeñs*, versus OE *wæter*, OHG *wazzar*) is undoubtedly significant, but it is *not* decisive proof of a common innovation, since the repatterning according

to a more productive inflectional type can have occurred independently in both groups. However, to picture PGmc. as 'a single unified speech community' (Lehmann 1968b:4) may also be oversimplification.

2. Components of the Germanic vocabulary

The vocabulary of Gmc. is composed essentially of three parts:

(a) a considerable corpus of terms maintained from PIE and reflecting the various aspects of the economical, social, and cultural life of the Gmc. speech community (Lehmann 1968b);

(b) a substantial number of terms of non-IE origin, ascribed to the earlier layers of population of the area occupied by the IE invaders from whom the Gmc. people originates (Scardigli 1960:41–57);

(c) various sets of isoglosses connecting Gmc. to the other IE languages, either individually or in specific subgroupings. The latter are particularly significant as indices of diachronically staggered areas of closer relationship within the IE community. Though some, indeed, reflect the maintenance of words of PIE stock and should as such belong to the first group, they represent typical archaisms, contrasted with innovations pervading the majority of the IE languages. Others are the result of more recent developments due to new contacts through migration and settlement in adjacent territories.

The particularly conservative character of Gmc. has long been recognized (e.g. Lehmann 1953) and confirmed by areal linguistics (e.g., Bartoli 1933; 1938). As a 'marginal' language, Gmc. can be expected to show some characteristic examples of survival of PIE vocabulary lost everywhere else except in some of the oldest attested IE languages, e.g., Hitt. Typical Gmc.-Hitt. isoglosses are, e.g.,

Hitt. *dankwis* 'dark': ON *døkkr* < Gmc. **diŋkwa-* < IE **dheng^{w}-;*
Hitt. *gank-* 'hang': Go. OHG *hāhan;*
Hitt. *lis(s)āi-* 'gather': OHG *lesan* 'gather, collect', Go. *galisan;*

(Polomé 1954:41–2; Kammenhuber 1961:62–3). They are paralleled by Hitt.-Lat.–Italic–Gmc. correspondences like Hitt. *hassa-*'hearth': Lat. *āra* 'altar', Osc. (loc.) *aasai.* in ara: ON *arina* (Ru. *aRina*) 'fireplace', OHG *essa* 'hearth, chimney'; Hitt. *maklant-* 'lean'; Lat. *macer:* ON *magr*, OE *mæger*, OHG *magar*. Particularly significant as a technical word in the oldest religious terminology is Hitt. *hwek-*'exorcize': 'kill a sacrificial animal', from a PIE expanded theme II **Hw-ey-k-* (with a modified Ablaut *hwek-*: *huk-* in Hitt.; Holt 1956:218–9): Lat. *victima* 'sacrificial animal'; ON *vē* 'sacred place', OS *wīh* 'temple', OE *wēoh* 'altar', Go. *weihs*, OS *wīh*, OHG *wīh(i)* 'holy'. The correspondence is the more striking

since the 'magical' connotation of the Hitt. verb (cf. LÚ*hukmatalla-* 'exorcizer') is also preserved in Gmc. **wikkan-* 'magician' (OE *wicca* 'magician, soothsayer'; cf. also *wiġle* 'witchcraft, magic, prophecy').

Equally important are the innovations due to cultural contacts. They have been discussed for more than a century, beginning with Lottner's (1858) list of Lat.-Gmc. isoglosses, in which he particularly stressed the culturally important correspondences in the field of agriculture and law. They involve essentially the lexical correspondences of Gmc. with the IE dialects with which it is assumed to have been in contact in prehistoric times, namely Ill., Ven., Balto-Slavic (as a group, as well as Baltic and Slavic separately), Celtic, Lat., and Osco-Umbrian.

3. Brief survey of recent research

Very often phonological and morphological data are brought into the picture to reinforce the assumptions made on the basis of lexical isoglosses. In the case of Gmc. and Balto-Slavic, a set of alleged common innovations on the morphological level was actually the main argument until Leskien (1876) showed that none of the inflectional evidence was really cogent, except for the case-ending *-m-* versus *-bh-* in other IE languages. Therefore, Uhlenbeck, trying to prove the closer association of Gmc. and Balto-Slavic in his doctoral dissertation (1890) concentrates on the vocabulary to make his case. Soon afterwards, Hirt (1892) explicitly dismisses both the phonological and morphological evidence and the lexical correspondences assumed to establish closer links between Balto-Slavic and Gmc., and proceeds to a thorough re-evaluation of Lottner's material, from which he concludes very prudently that the ancestors of the Gmc. and the Lat. peoples may have been close neighbors. The turning point in the study of the interrelationship of the IE dialects is, however, Meillet's pioneering study *Les dialectes indo-européens* (1908), in which he indicated that the whole problem of the position of Gmc. needed thorough revision on the basis of two of his hypotheses:

(a) since Italic (i.e. Latino-Faliscan, Osco-Umbrian, and the lesser Italic dialects) and Celtic seemed to have been so closely associated as to constitute a coherent linguistic community at the oldest period of their individualization within the IE area, the correspondences between Italic and Gmc. as well as those between Celtic and Gmc. which had been repeatedly pointed out since the days of Zeuss (1837) and Ebel (1861), had to be appraised in the light of this new theory.

(b) a closer study of lexical items shows that the northwestern IE dialects, i.e. Slavic, Baltic, Gmc., Celtic, and Italic, share a considerable number of terms reflecting a definite common cultural development,

to which many of the formerly quoted isoglosses, e.g. between Lat. and Gmc., directly refer. Lat. *far* (gen. *farris*) and *farīna*, with Umbr. *farsio fasiu*. farrea, which had been compared with ON *barr* 'barley'. Go. *barizeins* 'of barley', is also connected to OCS *brašĭno* 'food', Serbian *brȁšno* 'flour', Russ. *bórošno* 'rye-flour', so that the whole set may reflect a northwestern IE term designating 'food derived from cereals'.

Applying the findings of dialect geography to the results of the splitting of the IE community, Italian linguists tried to throw additional light on the various degrees of relationship of the IE dialects and on their relative chronologgy. Collecting an impressive number of phonological, morphological, and lexical correspondences, Bonfante (1931) came to the conclusion that Italic, Celtic, and Gmc. constituted a close western group, whereas Indo-Iranian and Slavic formed as compact an eastern group, with Baltic as a kind of transition between both groups in the north, though it remained closer to the eastern group. Taking into account the valid objections made against Meillet's Italo-Celtic theory as well as Devoto's strong argument in favor of the relatively late development of Lat. and Osco-Umbrian correspondences, Pisani (1933) situated Gmc. at the northern outskirts of the IE area, between Celtic and Balto-Slavic, with Lat. and Ill. to the south, the latter separating Gmc. from Osco-Umbrian. Chronologically, however, there were practically no linguistic relations between the Celtic and Gmc. areas before the breaking up of the IE unity, so that Pisani presumes that they must have been separated at an earlier date by a political and perhaps also religious boundary. Reexamining the evidence on Germano-Balto-Slavic linguistic relationship, he then reaffirms, against Hirt, that, after the moving out of the pre-Celtic group, a considerable nucleus of Indo-Europeans who would later constitute the Gmc. and Balto-Slavic tribes, formed such a unity that they shared quite a series of innovations, while the area was also subdivided by smaller waves accounting, e.g., for Germano-Baltic correspondences. Taking over the results of Krahe's inquiries on Illyro-Gmc. and Illyro-Balto-Slavic correspondences, Pisani (1940) ultimately regroups Gmc., Balto-Slavic, and Ill. (to which he adds Thracian) into a 'central' sub-group of the IE community, which he contrasts with the 'western' group consisting of Italic and Celtic, the 'southern' group, including Osco-Umbrian, Gk. and Macedonian, and the 'eastern' group, limited to Indo-Iranian. Apart from the *-m-* case-endings, which Ill. and Thracian do not share with Germano-Balto-Slavic anyhow, the non-lexical material adduced is, however, far from convincing; e.g., the development of [t] in the cluster /sr/: this also occurs in Brythonic, and in Slavic it is younger than the assibilation of */ḱ/, since */ḱr/ is reflected by *str*, whereas in Gmc. the change occurs prior to the operation of Verner's law. Therefore, Pisani's views

even failed to convince his Italian colleagues: in an important contribution to the *Hirt-Festschrift*, Devoto (1936) resolutely reaffirms the closer links between Gmc. and Lat. and between Gmc. and Osco-Umbrian, but points out that, while PGmc. with Proto-Celtic and PLat. belongs to West-IE, it also contrasts together with Proto-Slavic and Proto-Baltic, as North-IE, with South-IE including Lat. Moreover, he stresses that, while the Celtic and Lat. cultural vocabulary points to a prevailing priestly-aristocratic social organization, the corresponding Gmc. and Osco-Umbrian lexicon rather implies a more democratic type of society, as evidenced by the apparent absence of **teutā* in Lat. and of *rēx* in Osco-Umbrian and Gmc. This was further confirmed by Bonfante (1938), who collected 21 morphological and 46 lexical correspondences between Gmc. and Osco-Umbrian, much of which remained unfortunately rather disputable. As a consequence, when Porzig re-examined the relations of Gmc. with the neighboring IE dialects in his book *Die Gliederung des indogermanischen Sprachgebiets* (1954), he carefully screened the material accumulated by his predecessors and was especially concerned with the validity of the adduced phonological, morphological, and lexical isoglosses as indications of dialectal variation. As regards Gmc. and Italic, he listed three phonological correspondences: (1) the change of the voiced aspirates into voiced fricatives, (2) the back vowel reflexes of syllabic /l/ and /r/, (3) the change of **tt-* to **ss-* through **-ts-*, the first two of which can be called in question, since it is more likely that (1) the voiced aspirates became voiceless aspirates in Lat. and Osco-Umbrian as in Gk., (2) the reflexes of IE [r̥] and [l̥] were vocalic resonants rather than sequences of *u* plus resonant in PGmc., whereas to claim an actual correspondence between the Gmc. and Lat. treatment of IE [r̥] and [l̥], Szemerényi's hypothesis (1941) that the syllabic 'liquids' are reflected by *ul* and *ur* rather than by *ol* and *or* in Lat. should be unconditionally accepted. As for the treatment of IE dental plus **t* in intervocalic position, it is probable that the intermediate stage **-tst-*, preserved in Anatolian, was reduced to **-ts-* in Celtic as well as in Lat., Osco-Umbrian, and Gmc., with further assimilation of **-ts-* to **-ss-:* the Celtic forms in which **-st-* is assumed to reflect IE **-tt-* do not, indeed, constitute any more conclusive evidence than the Gmc. forms in **-st-*, on which Kögel (1880) based his assumption that IE **-tt-* preceded by the accent became **-st-* in Gmc.

Similar objections may be made to the morphological correspondences he assumes: upon closer examination, the only convincing common innovation of Lat. and Gmc. is the use of the IE 'stative' in *-ē-* as the basis for a particular present formation (Polomé 1966b; 1967). The lexical correspondences, however, lead Porzig to some very interesting conclusions:

(a) At the time of the close linguistic relationship between Gmc. and Italic (meant as the proto-language from which both Lat. and Osco-Umbrian developed), the speakers of the two languages must have been in direct contact; after the southward move of the Italic tribes, the 'Illyrians' came between them and the Gmc. tribes.

(b) The period of close contact must have been from the oldest times of the IE community until the last third of the second millennium B.C.

(c) As regards the position of Osco-Umbrian, wherever relevant forms occur in these languages, they correspond to Lat. in 6 cases out of 7 when Lat. and Gmc. contrast with Celtic and in all 6 cases where Lat. and Celtic contrast with Gmc., so that 'die idg. Ursprünge des Oskisch-Umbrischen und des Lateinischen nahe beisammen lagen.'

(d) Culturally, the Latino-Gmc. isoglosses involve topographic terms and names of parts of the body, but especially a large technical vocabulary, including fishing, hunting, and mainly agriculture and law; characteristic is the absence of common innovations in the field of military terms. Compared with the Italo-Celtic vocabulary listed by Porzig where there are fewer technical terms and no law terms at all, the Latino-Gmc. correspondences seem to point to a higher level of culture.

As for the Celto-Gmc. correspondences, Porzig carefully selects those which are likely to belong to an older layer on account of the loss of /p/ in Celtic, of their vowel gradation or of the operation of the consonant shift in Gmc., and points out that they reflect 'Ausstrahlungen einer staatlich-gesellschaftlichen Kultur über Teile der Westindogermanen,' in which Italic does not take part. For him, the center of irradiation of these cultural influences is the Celtic area, where 'die Ausbildung bestimmter Herrschaftsformen und einer eigentümlichen gesellschaftlichen Gliederung und die Entstehung des urkeltischen Sprachcharakters' are two aspects of one and the same historical process, which influenced the Gmc. tribes at a later date without directly involving them. Screening the Ill. and Ven. material gathered by Krahe, he retains 6 isoglosses, which are supposed to reflect common innovations of Gmc. and Ill., not shared by Celtic and Italic, and accordingly younger than the dissolution of the West-IE community, but older than the consonant shift.

In the case of Gmc. and Balto-Slavic, the problem of the relative dating of the isoglosses seems to be crucial: common innovations would point to lasting neighborly relations stretching from the oldest IE period to the beginning of the Iron Age, as shown by the corresponding words for 'mill', 'rye', and 'silver'. Where Slavic and Gmc. contrast with Baltic, the latter usually appears either to be more conservative or to have innovated on its own; the exclusively Baltic-Gmc. correspondence reflects

very old situations. The study of the lexicological isoglosses of Gmc. with the neighboring languages accordingly shows contrary to Hirt that Gmc. had closer relations with Baltic and Slavic than with any other language outside the western group, but Porzig still believes that the link between Gmc. and Lat. was closer.

In *Sprache und Vorzeit* (1954), the position of Gmc. is again scrutinized by Krahe, whose main aim is to ascribe the linguistic unity of Old European hydronymy to the existence of a prehistoric linguistic community of IE origin covering the same territory. This community corresponds by and large to the civilization of the North-West, defined by Meillet on the basis of its vocabulary, though Krahe evidently adds Ill. and Ven. to Gmc., Celtic, Italic, Baltic, and Slavic as languages which have developed from this 'Old European' stock. Otherwise, his views are rather conservative: the territory of the Old European community constituted a continuum in which the ancestors of the Italic and Celtic tribes progressively differentiated their speech within an originally common area; the ancestors of the Gmc. tribes came closer to the Proto-Italic part of this area, and, hence, shared old common innovations both with Italic and Celtic or with Italic only. As the three groups developed as individual ethnic entities, the 'Italic' group moved out, and only then did Celtic and Gmc. come into close direct contact. In the East, the ancestors of the Gmc. tribes had presumably the ancestors of the Ill. and Ven. as neighbors, so that they remained separated from the ancestors of Baltic and Slavic tribes until the Illyrians and Venetes moved out (cf. also Schwarz 1952). This would evidently imply that the oldest correspondences between Gmc. and Balto-Slavic were originally shared by Ill., an assumption which is not backed up by the evidence (Porzig 1954:143).

As a result, Čemodanov (1962) in his critical re-examination of the position of Gmc. in the IE linguistic community, though not following Georgiev (1958) in his overstatement of the importance of Balto-Slavic and Gmc. correspondences, tries to reconcile the views of Porzig with a better valuation of the Germano-Balto-Slavic isoglosses. Diachronically, in his opinion, there are two distinct stages in the relationship of both Slavic and Gmc. with the neighboring IE dialects. Originally, Slavic was closer to Indo-Iranian, especially to Iranian, whereas Baltic was in close relation with Gmc. When Slavic broke away from Iranian, it became more closely linked with Baltic, whereas Gmc. got involved in a closer relationship with Italic and perhaps also with Ill. and Ven. Only after the migration of the ancestors of the Italic tribes did Gmc. and Celtic come into closer contact and develop their common features.

This brief survey of the views expressed in major works on the

position of Gmc. among the IE languages clearly shows that phonological and morphological correspondences hardly supply sufficient evidence to draw satisfactory conclusions regarding a closer relationship with neighboring dialects and that the bulk of the material referred to in the discussion is lexical, though common patterns of derivation may often be especially relevant. Accordingly, the two main tasks confronting the student of the earliest relations of Gmc. with the neighboring dialects are:

a. checking the validity of the Germano-Balto-Slavic and the Germano-Italic isoglosses, with special consideration of the correspondences of specifically Baltic, Slavic, and Osco-Ubrian lexical items with Gmc. terms;

b. establishing the relative chronology of these sets of correspondences on the basis of linguistic and cultural criteria.

This presumes, however, that the prevailing view that specifically Germano-Celtic isoglosses reflect younger contacts between the two linguistic groups than the lexical correspondences they share with Lat. and Osco-Umbrian. As for the problem of the relationship of Gmc. with Ill. and Ven., the limitation of the available material and the disputability of its interpretation, especially in the case of proper names, will necessarily make any far-reaching conclusion hazardous (Polomé 1957; 1961; 1966a).

4. Germano-Balto-Slavic correspondences

Whereas Porzig (1954:140–3) only listed 8 isoglosses linking Balto-Slavic with Gmc., Čemodanov (1962:81–5) lists 24, but upon closer examination (Polomé 1970a:61–9), only 8 remain valid, namely:

(1) the word for 'gold':

Go. *gulþ*, ON *gull*, OE, OS *gold*, OHG *golt:*
Lett. *zèlts*, eLith. *želtas:*
OCS *zlato*, Russ. *zóloto*, Cz. *zlato*, etc.,–

in which, in spite of the ablaut-alternation between Gmc. (Ø-grade), Baltic (*e*-grade) and Slavic (*o*-grade), the typical parallel use of the nominal suffix *-to-* to indicate the metal characterized by its yellow color can hardly be accidental;

(2) the numeral for '1,000':

Go. *þūsundi*, ON *þūsund*, OE *đūsend*, OHG *dūsunt:*
Lith. *túkstantis*, Lett. *tūkstuots*, OPr. *tūsimtons:*
OCS *tysęšta*, Russ. *týsjača*, etc.–

for which the compound form **tūs-ḱṃtyom* 'Kraft-hundert' is undoubtedly a common innovation of the three languages, though various details in the phonetic development from the above prototype (postulated by Leumann 1941) remain to be cleared up:

(3) the verb for 'shine':

ON *blīkja*, OE *blīcan*, OHG *blīhhan:*
Lith. *blỹkšti* 'grow pale', *blizgěti* 'shine', Lett. *blaiskums* 'spot':
OCS *bliskati–*

all of which point to an enlarged theme II **bhl-ey-ǵ-* from the root **bhel-* 'shining, white': the Baltic and Slavic are based on a *-sk-* present derived from this theme, but Baltic **blīšk-* seems to imply the coexistence of an original enlarged theme **bhl-eH*$_1$*-y-*. In spite of the problem this Baltic form creates, the restriction of the occurrence of the enlarged theme II **bhl-ey-ǵ-* to Gmc., Baltic, and Slavic with actual correspondence in semantic usage makes it plausible to consider its formation as a common dialectal feature, but it is always possible that the parallel use of the determinative *-ǵ-* in the three languages is accidental. In this specific case, however, it should be pointed out that the other enlarged form of the theme II **bhl-ey-*, namely **bhl-ey-k-* appears only in Gmc. (e.g., OE *blǣġe* 'white bream') and Slavic (e.g., Russ. *blëknut'* 'become pale, fade'), and that a color-adjective in *-wo-* is derived directly from this theme in Baltic (Lith. *blývas* 'lilac, pale violet') and Gmc. (**blīwa-*, applying to 'lead': OHG *blīo*, ON *blý*, etc.);

(4) the word for 'wax':

ON *vax*, OE *weax*, OHG *wahs:*
Lith. *vãškas*, Lett. *vasks:*
OCS *voskŭ*, Russ. *vósk* –

all pointing to a thematic noun **wokso-*, though further etymological connections are rather conjectural; in spite of the apparent Ger. parallel *Wabe: weben*, a derivation from the PIE theme II **H*$_2$*w-eg-* 'weave' (e.g. OIr. *figim* 'weave') with the same *-s-* determinative as in Lat. *vēlum* 'veil, curtain' < **wek-s-lo-m* (cf. also *vexillum* 'standard') remains doubtful; borrowing from local non-IE languages or introduction of a 'Wanderwort' is also possible with such a technical term;

(5) the word for 'herd', applying specifically to horses:

ON *stōð* 'herd of mares'; OE *stōð*, OHG *stuot* 'herd of horses':
Lith. *stódas* 'herd of horses':
OCS *stado*, Russ. *stado* 'herd' –

apparently reflecting **steH*$_2$*-dh-*, though, semantically, a connection with **stā-* < **steH*$_2$- 'stand' is improbable;

(6) the word for 'low' or 'to crawl':

ON *lāgr*, MHG *lāge* *'flat'*:
OPr. *līse* 'crawls', Lith. *lėkštas*, Lett. *lẹ̄zns* 'flat':
OCS *lězǫ*, *lěsti*, 'crawl'–

all of them apparently reflecting a theme I *$*leH_1$-ǵh-* whose connection (often suggested, but with hesitation) with **legh-* 'lay down, lie,' would imply that this 'root' actually reflects a theme II *$*lH_1$-egh-;*

(7) the word for 'weak, soft':

ON *kløkkr* 'soft, flexible' < **kleŋkwan-*, MHG *klinker* 'weak':
Lith. *glėžnas* 'weak, flabby', Lett. *glęzns* 'tender, soft':
Bulg. *glézen*: 'spoiled'–

apparently reflecting a theme II **gl-eǵ-*, hardly consistent with the nasalization in Gmc., which implies an enlarged theme II **gl-en-g-;*

(8) a technical term reflected by

OE *delfan* 'dig', OHG *bitelban* 'bury':
Lith. *dálba, délba* 'crowbar':
Russ. *dolbit'* 'chisel, chop'–

all of them from a them from a theme I **dhel-bh-*. Other often quoted technical terms like the words for 'rye', 'rule', and 'mill(stone)' are not cogent evidence of closer relationship between Gmc. and Balto-Slavic:

(a) in the word for 'mill(stone)', Gmc. (Go. *qairnus*, ON *kvern*, OE *cweorn;* OHG *quirna*) shows a younger *-n*-derivation from a theme I *$*g^wer$-H-*, contrasting with the enlarged theme II *$*g^wr$-eH_2-w-* in Skt. *grāvan*, OIr. *brān*, whereas in Balto-Slavic *$*g^wṛHn$-* (OPr. *girnoywis* [= *girnuwis*], Lith. *gìrnos*, Lett. *dziřnus, dziřnavas;* OCS *žrŭny*, Russ. *žërnov*, etc.) may very well reflect the zero grade of *$*g^wr$-eH_2-n-* evidenced by Armenian *erkan;*

(b) the term for 'rye' (ON *rugr*, OE *ryġe* < **rugi;* OS *roggo*, OHG *rocko* < **rugan-;* Lith. *rugỹs, rugiaĩ*, Lett. *rudzis* 'grain of rye'; (pl.) rye': OCS *rŭžĭ*, Serbo-Croatian *raž*, Russ. *rož'*, etc.) is apparently a borrowing from a non-IE language of the Caspian sea, which would have come to Gmc. through Baltic; Thracian *bríza* 'rye' is probably from the same source;

(c) the verb for 'rule' (Go. *waldan*, ON *valda*, OHG *waltan:* OCS *vladǫ vlasti*, Cz. *vladu, vlásti:* Lith. [with a different present formation] *veldù (veldžiu), veldėti*, OPr. (acc. pl.) *waldnikans* 'kings') reflects a stem **waldh-* similarly derived in the three languages by means of the *-dh-* determinative from a theme II *$*wH_2$-el-* 'be strong' (cf. the 'stative' *valē-* in Lat.), used specifically to designate public authority or political supremacy. This raises the question: *can a parallel derivation with the same suffix from a definite IE etymon always be validly considered as a significant isogloss between two related neighboring IE dialects?* In view of the frequency of occurrence of the *-dh-* affixation of themes II in the Gmc. noun and verb formation (Lehmann 1942), it may be wise to avoid

using its parallel occurrence in Gmc., Baltic, and Slavic as a criterion of common development.

More complex is the case of ON *ljōðr*, OHG *liut* 'nation', OE *leode*, OHG *liuti* 'people': Lith. *liáudis* 'nation', Lett. *ļàudis* 'people, nation': OCS *ljudŭ* 'nation', Russ. *ljud(i)*, which reflect the enlarged PIE theme II $*H_1$*l-ew-dh-* 'grow', also found in Lat. *līber* and Gk. *eleútheros* with special connotations relevant to the position of the individual in the IE social structure. It is clear from Gmc. law that the Latinized technical term *leudis* designates the 'freeman'; in OHG, *liuti* originally meant 'heer- und dingberechtigte Mitglieder des Volksverbands,' until the strict organization of the Franconian state reduced them to the status of 'subjects;' the word then became the mere designation of the 'ingenuum vulgus'. Though the Baltic and Slavic words have often been considered as borrowings from Gmc., this assumption does not rest on sufficient grounds, as Kiparsky (1934:72–4) has shown, and therefore the ORuss. translation of *laĭkos*, *ljudinŭ*, 'freeman', applying to the lower and middle class as contrasted with the nobility and clergy, and OLith. *liáudis*, designating the 'common people' in Daukša's postil, provide nice parallels to the use of Gmc. *leudis* als 'Vertreter des Volkes schlechthin, d.h. jener von Hörigen und Adligen abgehobenen Hauptmacht desselben, die entsprechend der jeweiligen soziologisch-politischen Entwicklung höher oder niedriger geachtet wird.' Lat. *līber* and Gk. *eleútheros* similarly indicate membership in a social class, but focused on the contrast with *servus* and *doûlos*, specifying their status as not being submitted to servitude. As Benveniste (1936) has convincingly shown, the basic concept of Lat. *līber* and Gk. *eleútheros* is 'legitimate', lawful birth ensuring the citizen his full civil and political rights.

What apparently has happened is the common development of a legal meaning to the term originally designating the 'rising generation,' whose first meaning has been preserved in Lat. *līberī*. As Scheller (1954:42) suggests, the use of the term must first have been expanded to designate the 'erwachsenen echtbürtigen Angehörigen des Volkes . . . insofern diese ihrerseits sich als echtbürtigen Nachwuchs ihrer Vorfahren bezeichnen.' This is further confirmed by the social function of the god of growth and vegetation *Līber* as protector of the popular community. Evidently the word originally designating the 'freeman' appears to be a technical term shared with Lat. and Gk., reflecting a typical feature of West-IE social organization.

Accordingly, the acceptable lexical evidence exclusively shared by the Gmc., Baltic, and Slavic tribes is hardly sufficient to draw any definite conclusions as to their close relationship or even the level of civilization they had reached at the time of their contact. It merely

confirms that they were familiar with gold, wax, horses and implements to dig and chop off, but this points in no way to a new shared cultural development. Perhaps the only clue about such progress is the creation of a common numeral for a multiple of 'hundred'.

5. Germanic-Baltic correspondences

With a view to establish the early close relationship of Gmc. with Baltic, Čemodanov has collected an impressive list of isoglosses, which are claimed to be very archaic, because the greater part of lexical material involved is linked with the conditions of primitive life. It describes parts of the body and illnesses, labor and processes as well as products and parts of buildings, but does not contain any common terminology relating to social life, except for a few verbs of speech. Without prejudice to the validity of the argument that such word correspondences are essentially characteristic of so-called 'primitive forms' of social life, it should be pointed out that, upon closer examination, a considerable percentage of Čemodanov's isoglosses appear not to be strictly Gmc.-Baltic correspondences, or to be disputable on other grounds. In some cases, the difficulties are chiefly of phonetic order, e.g., when Čemodanov compares the isolated ON *karp* 'boasting' with Lith. *geřbti* 'to honor' deriving them both from a theme I $*g^{w}er\text{-}bh\text{-}$, which implies a very disputable development of IE $*g^{w}o\text{-}$ to *ka-* in Gmc., besides separating the Lith. word from its homonym *geřbti* 'to put in order, clean, decorate', from which it can be semantically neatly derived (Jēgers 1966:62–6). In other cases, the validity of the isogloss depends on the interpretation of the historical development of the phonemes involved, e.g., ON *kvikr* 'alive': Lett. *dzīge* 'life', where the Gmc. *-k-* has been explained as a reflex of a laryngeal, which explanation would not readily account for the *-g-* of the isolated Lett. form. One can also wonder how valid correspondences are, where Baltic and Gmc. show completely different derivation patterns, e.g., in the case of Lett. *paũkštis:* Go. *fugls* 'bird'.

Other correspondences set up by Čemodanov are disputable for strictly semantic reasons, e.g., ON (poet.) *hnyssingr* (kind of fish): Lett. *knaũsis* 'midge', where the relationship between the two terms is claimed on the basis of an assumed MnNorw. cognate *nyssa* 'snatch at'. In some cases, apparent correspondence in meaning and form is hardly cogent evidence for the antiquity of the linguistic relationship between Baltic and Slavic: this applies expecially to the verbs expressing some kind of sound utterance, most of which are presumably of onomatopoeic origin, e.g., ON *rira* 'rattle', OE *rārian* 'roar, below': Lith. *rieju* 'shout', Lett. *reju* 'bark'. Another group of connections assumed to be very old by Čemodanov

actually appears to reflect recent borrowings, e.g., Lith. *snãkė* 'snail' (compared with OE *snægel*, OHG *snecko*) is a loanword from East Pr. *šnâk* 'snail, poisonous snake', as Alminauskis (1934:117) has pointed out.

Another important task of the etymologist using correspondences between two distinct IE dialects to investigate the possibility of assuming closer prehistoric contacts between them, is to make sure that their specific phonetic, morphological, and semantic common features are not shared by terms belonging to other dialects. Thus, in the case of OE *grindan* 'grind': Lith. *gréndžiu grę́sti* 'scrape, scrub', there is practically no doubt that Lat. *frendere* 'gnash' should be added to the Baltic and Gmc. cognates, whether its initial *fr-* reflects IE */g^{wh}r-/ or */g^{h}r-/ (in the second case, however, with analogical *fr-* instead of **hr-* under the influence of *friãre*, *fricãre*).

Out of the 69 correspondences listed by Čemodanov, only a third will be accepted without further dispute, because of their formal and semantic validity, e.g., Go. *greipan:* Lith. *griẽbti* 'grasp', or Lith. *skeliù:* Go. *skulan* 'owe'. Some of them show remarkable concordance in the semantic development as, e.g., OE *wifel:* Lith. *vãbalas* 'beetle', for which the only formal parallel adduceable would be Ven. *vebele.i.* 'weaver', used as an epitheton of *Reitia*, which is derived with the suffix *-l-* from the stem of the thematic present **webhe/o-* 'weave'.

Similarly, the specific use of the theme **der-w-* to designate 'tar, pitch' is exclusively Gmc. and Baltic (ON *tjara*, OE *teoru* 'tar': Lith. *dervà* 'resinous wood, resin, pitch, tar', Lett. *dařva* 'tar'). Important also is the existence of a common derivational pattern with specialized meaning like in the adjective for 'of last year' (Lith. *pérnai:* Go. *fairnin jẽra*), though one will find cases like the parallel derivation of an *i-* stem from the verbal stem meaning 'to be, to dwell', in ON *byr* < **būwi-* versus Lith. *bũvis* 'dwelling' less impressive.

Special weight is, of course, to be laid on common innovation, for it may be quite significant that only Baltic and Gmc. developed a word for a 'spring' or 'well' from the root **gel-* meaning 'cold' or 'freeze': (ON *kelda* 'well': Lith. *šaltìnis* 'spring' (cf. *šáltas* 'cold'). However, when one surveys the set of valid comparisons that is left after careful reexamination of Čemodanov's material, there remains pretty little to build on, if we want to confirm his hypothesis of very ancient close relationship between Baltic and Gmc. That they would share words for such actions as 'grasping', 'gathering', or 'binding'–a semantic field in which synonyms or quasi-synonyms are commonly abundant–can hardly be considered significant. Semantic developments like those attested by OHG *swangar* 'with calf' and Lith. *sunkingas* 'pregnant' need not be old, for the basic meaning 'heavy' is commonly associated with pregnancy and the different

derivation of the two terms from the expanded theme **sw-en-k-* hardly makes a common development plausible. Where parts of the body are involved, as in the case of Go. *wairilom* (dat. pl.) 'lips': OPr. *warsus*, one has to take into consideration that localized innovations, partly due to taboo, are frequent, and the isogloss under consideration precisely belongs to a set of correspondences where the Baltic evidence is restricted to OPr., which would lead to presume that there has been a noticeable difference in closeness of contact between the West Baltic dialects and Gmc. versus the wider interchange between Baltic and Gmc. in general as Stang (1966:13) pointed out. This would also involve some important considerations as to the time depth of the period of closer contact. Anyhow, one may argue that the Baltic and Gmc. tribes must have lived since the formation of the northwestern IE community in an area where pitch was gathered and where the springs only produced cold water, that they designated a definite type of beetle as a weaver, that they had a common word for such concepts as 'to owe' or 'last year', or that they derived names for such skin diseases as 'rash', 'mange', or 'leprosy' from a root indicating a rough, uneven, granulous surface (ON *hrjūfr* 'scurry', OE *hrēof*, OHG *hriob* 'leprous': Lett. *kraũpis* 'mange, scurf' [: Lith. *kraupùs* 'rough, uneven, scrubby']), or a set of words relating to intellectual activity from the theme **pret-*, also attested by Toch. A *pratim*, B *pratiṃ* (Go. *fraþi* 'understanding, judgment'; ON *frōðr*, OHG *fruot*, OE *frōd* 'intelligent, wise': OPr. *prātin* 'advice', Lett. *pràts* 'mind, understanding'; the connection with Lat. *interpretāri* 'explain, expound', however, remains disputable). None of these facts can, however, be considered as a valid clue for the high antiquity assigned by Čemodanov to the closer relationship between Baltic and Gmc. The only arguments of any cogency in this regard would be the parallel formation of the numerals for 'eleven' and 'twelve' (Go. *ainlif*, *twalif*, OHG *einlif*, *zwelif*: Lith. *vienúolika*, *dvýlika*) with a verbal stem meaning 'leave over' and the use of a *-m-* suffix to derive the ordinal for 'first' (OE *forma-* OS *formo-*: Lith. *pìrmas*, OPr. *pirmas*). In the first case, at least, there is some intimation that the correspondence may not be so old as is usually claimed since the verbal stem involved is apparently different, unless one wants to posit an aberrant change of IE **k*^{w} into Gmc. *f* in a stem that does *not* contain another labial.[1]

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[1] Čemodanov assumes that Go. *(bi)leiban* 'remain' goes back to IE **leyk*^{w}-, just as Lith. *lìkti* 'remain'. Those who, like Hirt (1931:108–9), admit of a conditioned change of IE **k*^{w} to Gmc. **f*, however, limit its occurrence with the IE theme **ley-k*^{w}- to the second component of Go. *twalif*, OS *twelif*, OHG *zweli* 'twelve' where it could be motivated by the presence of the labial /w/ in the first component (cf. Go. *wulfs* 'wolf' from **wl̥k*^{w}*os* [Skt. *vṛkáḥ* 'wolf'],

6. Germanic-Slavic correspondences

There are a set of striking lexical correspondences between Slavic and Gmc., but they are, for the most part, non-technical terms which give no clue as to the social structure or the cultural development of the linguistic community in which they arose. Examples are:

(1) ON *bǫrr* 'conifer', OE *bearo*, OHG *paro*, *baro* 'forest, grove': ORuss. *borŭ* 'spruce', Russ. *bor* 'pine forest';

(2) OE *fȳst* 'fist', OHG, OS *fūst* < Gmc. **fūsti-* < **funsti-* < IE **pn̥sti:* OCS *pęstĭ* 'fist' < Proto-Slavic **pinstĭ* (the relationship with Lith. *kùmstė* < **kùmpstė*, on the basis of a metathesis in Proto-Baltic **punkstė*, remains disputable; a connection with Lith. *kuñpas* 'curved' is more plausible);

(3) ON *farmr* 'cargo, freight', OE *fearm*, OHG *farm* 'boat': OCS *pramŭ* 'boat';

(4) ON *stakkr* 'haystack, heap,' MLG *stack* 'dam of logs': OCS *stogŭ* 'heap';

(5) Go. *bairgan* 'secure, preserve', ON *bjarga* 'secure, save', OE *beorgan*, OHG *bergan:* OCS *brěgǫ*, *brěšti* 'take care of', Russ. *beregú* 'I watch over';

(6) ON *hremma* 'clasp, pinch', OE *hremman* 'hinder, obstruct', MDu. *remmen* 'put to a stop': Russ. *zakromit'* 'surround with boards';

(7) ON *jaðarr* 'edge, brim' < Gmc. **eðaraz*, OE *eodor* 'fence', OS *edor* 'fence, fenced field', OHG *etar:* OCS *odrŭ* 'bed', *odrina* 'cattle shed', Cz. *odr* 'post';

(8) Go. *balwawesei* 'malice', ON *bǫl* 'misfortune', OE *bealu* 'evil, misfortune', OHG *balo* 'evil, destruction': OCS *bolŭ* 'ill', *bolěti* 'be ill'.

Not all the evidence usually adduced to illustrate a Gmc.-Slavic linguistic relationship is convincing: in the last three examples quoted, the semantic link between the Slavic and Gmc. words is rather tenuous. In other cases, in spite of a perfect semantic correspondence, a *direct* connection between the terms in both language groups is disputable on morphological grounds, e.g., in ON *rif*, OE *ribb*, OS *ribb(i)*, OHG *rippi:* OCS *rebro* 'rib', where the Gmc. words reflect a *-yo-* derivation from IE **(H₁)rebh-*, whereas Slavic shows a *-ro-* derivation. Both, however, use the same image to designate the ribs as the part of the body covering the

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versus ON *ylgr* 'she-wolf'; Go. *fidwor* 'four': Lat. *quattuor*, etc.). In this case, the final *-f* in Go. *ainlif*, OHG *einlif* 'eleven', has to be analogical, but in view of the coexistence of reflexes of the IE themes **ley-p-* and **ley-kʷ-* in Gmc., e.g., Go. *-leiban* 'remain': *leihwan* 'borrow', it is more obvious to connect the second component of the numerals for 'eleven' and 'twelve' with the former, the more so since the Gmc. reflexes of IE **ley-p-* definitely indicate 'what is left over', e.g., OE *lāfan* 'be left remaining', like their Toch. cognate AB *lyipär* 'rest'.

thoracic cavity as a roof on a house (cf. Gk. *eréphō* 'cover with a roof'). Better is the case of the word for 'swan' (ON *elptr*, OE *ælbitu*, *ielfetu*, OHG *albiz*, *elbiz:* OCS *lebedŭ*, Serbo-Croatian *làbûd*, OCz. *labuť*, etc.), where both language groups show a derivation with a dental suffix from the adjective **albh-* 'white' (Lat. *albus*, Umbr. *alfu.* albos, etc.), which was otherwise lost in Slavic and Gmc. In view of the divergent vocalism of the suffix, the derivation may, however, have occurred independently in Slavic and Gmc.

It is also very difficult to assess how significant the parallel occurrence of the *o*-grade in the word for 'water' in Slavic and Gmc. actually is, when Gmc. clearly preserves traces of the original heteroclitic paradigm (Go. *watō*, gen. *watins*, ON *vatn:* OE *wæter*, OS *watar*, OHG *wazzar*), whereas Slavic has shifted totally to the thematic type (OCS *voda*). Some parallels are undoubtedly of much younger date, e.g., ON *skark* 'noise': OCS *skrŭgŭtati* 'make a noise'. Others are to be rejected, e.g., ON *hǫll* 'elder' OHG *holuntar:* Russ. *kalina* 'guelder rose, snowball tree', as the latter is presumably derived from Russ. *kal* 'mud, mire'.[2] On the whole, the limited material available does not make any closer relationship between Slavic and Gmc. plausible.

7. Germanic-Latin-Osco-Umbrian correspondences

It is generally recognized that the closer linguistic contacts between the Gmc. and Celtic tribes in their northern European homeland were younger than those between the Gmc. tribes and the ancestors of the tribes that invaded the Italic peninsula in several waves in the 2nd millenium B.C. Apparently, at a time prior to the departure of these tribes to the south, the ancestors of the Gmc., Celtic, Osco-Umbrian, and Latino-Faliscan peoples constituted a very important cultural subdivision of the North-West-IE linguistic community, sharing important features in their social, economic, religious, and political organization, as reflected by the relevant vocabulary, e.g., Lat. *vātes* 'soothsayer, seer': Gaul. (pl.) οὐᾶτειϛ 'seer', Ir. *fāith* 'poet', OE *wōþbora* 'poet, orator, prophet', from a root **wāt-* expressing 'divine inspiration', a meaning still preserved by ON *ōðr* which designates 'inspired mental activity'–hence the name of the god *Ōðinn* (OHG *Wōtan*), who presides over such activities as the inspired god, the prince of poets, the master of divinatory runes. Another term reflecting common techniques as well as their religious correlates is **pṛkā* 'furrow', attested by Gmc. **furhō* (Ger. *Furche*, E *furrow*), Lat. *porca* 'ridge between two furrows', Welsh *rhych*, Gaul. **rica*, preserved in French *raie*, Provençal *rega* 'furrow, ridge between furrows'–a word which

[2] See the discussion in Vasmer 1952:509–10.

also indicates the goddess of the furrow, as is illustrated by OE *Erce* from OWelsh *reca*, Gaul. **rica*, a name of the Mother Goddess, like ON *Fjörgyn* which reflects a derivation from the same root, as well as Lat. *Imporcitor*, a minor god presiding over the cutting of furrows. Institutions shared by the three groups are also reflected by such words as OIr. *cacht* 'slave-girl', Welsh *caeth* 'slave': Lat. *captus*, *captīvus* 'prisoner'; ON *haptr* 'serf', OE *hæft*, OHG *haft* 'captured', pointing to the current practice of reducing prisoners to slavery. Their techniques are illustrated by such words as (a) Lat. *unguen*, Umbr. *umen* 'fat, ointment'; Ir. *imb*, Bret. *amann* 'butter': OHG *ancho* 'Butter' (still dial. *Anke*), indicating a common process to prepare 'butter' (a later change in technique introducing the Lat. loanword *butter* < *butyrum*, actually from Gk. *boutūron* 'curds', itself ultimately a loan translation from the Scythians of the steppes above the Black Sea). (b) Lat. *crībrum* 'sieve': OIr. *criathar:* OE *hrīdder*, OHG *ritera* (> Ger. *Reiter* 'large sieve'): Umbr. (acc.) *kletram* 'litter': MIr. *clethrar* 'prop': Go. *hleiþra* 'sent'.

In those days, the ancestors of the Latino-Faliscan and Osco-Umbrian tribes must have been the closest neighbors of the Gmc. tribes, so that they developed a set of common terms about various items of culture not shared by the Celts. Especially interesting are a group of socio-legal terms which characterize a more hierarchical type of society, e.g., the sense of social community stressed by Go. *gamains* 'common', *gamainja* 'participant', OHG *gimeini* 'common', *gimeinida* 'community, commune': Lat. *communis* 'common' < *'who shares the duties' (cf. *mūnia* 'official functions, duties of a magistrate'), from a root **mey-* 'exchange', from which the derived noun **moyno-* also attested in OIr. *móin* 'precious object' and Av. (Gāthas) *maēniš* 'punishment', only shows these specific sociolegal connotations in Gmc. and Lat. Similarly, a pres. part. formation to the root of 'to be' has further specialized the meaning 'true' (which it shares with Skt. *satya-* and Av. *haiþyō*) to that of 'guilty' in Lat. *sōns* and ON *sannr*, and the derived nouns OS *sundia*, OHG *suntea* have developed the religious meaning of 'sin'. A very old root belonging to the IE religious and judicial vocabulary, **sak-*, attested by Lat. *sacer* 'sacred': Hitt. *saklais* 'law, rule', appears in derivations with the connotations 'ratify, sanction, establish solemnly' in Lat. *sanciō* and ON *sāttr* 'reconciled, at peace'. The verb meaning 'to show, point at' (Gk. *deíknūmi*, Skt. *diśáti*) is used in Lat. and Gmc. with a specific judicial meaning: *iūs dīcere*, *causam dīcere*, *sententiam dīcere*, *multam dīcere*, *diem dīcere* are the technical phrases covering the various processes of justice: 'indicate the law, discuss a case, give an opinion, sentence to a fine, set a day in court'; OE *tēon*, OHG *zīhan* mean more specifically 'to indict, to accuse'. Political organization and its judicial aspects accordingly seem to be an important

component of the Lat.-Osco-Umbrian-Gmc. correspondences. However, whereas the Lat. seem to have preserved more faithfully the older IE pattern of social organization based on a three level hierarchy of powers

(1) sovereignty, with its religious and judicial components, embodied by the *rēx* of early Rome;

(2) military force, represented among others by the Roman chivalry *(equites);*

(3) arts and crafts–the producers in the community, the power of the *rēx* seems to have been broken by a kind of democratization in the homeland after the departure of the ancestors of the Latins, but before the departure of the Osco-Umbrians. This is indeed suggested by the fact that neither Osco-Umbrian nor Gmc. have a correspondent to Lat. *rēx* (Gmc. *reiks*, e.g. in proper names, is a late borrowing from Celtic), but designate the leader of the community as a magistrate responsible to it. Thus, Go. *þiudans*, ON *þiōðann*, OE *þēoden* are derived from the IE noun **teutā* 'popular community'–with the same suffix **-no-* as Lat. *dominus* 'master' from *domus* 'house': the Gmc. 'king' is accordingly the leader of the people (Go. *þiuda*, OHG *diota*) conceived as a *primus inter pares*, with special emphasis on his function as 'judge', as expressed by the ON word for 'sovereign' *mjǫtuðr*, derived from a root meaning 'measure', which often acquires the judicial meaning of 'judge' (Ir. *ro-midar* 'I have judged') or shows a political application to the 'chief' (Homer *medéōn* 'chief'). The noun **mēd-* (OHG *māz*) 'measure' indicates the right balance (Ir. *med*, Lat. *modus*), i.e. what is just and equitable, and therefore the Osc. correspondent of Lat. *iūdex* ('he who indicates the law') is the *meddix* (Osc. *meřs* means 'law, justice' and reflects the older **medos* appearing as first member of this compound, the second being the root **deyk-* 'indicate', whose judicial connotations have already been pointed out). No wonder then that the first magistrate of the Oscan cities *(touto)* is called *meddíss túvtíks*, literally 'he who shows the right measure to the city'. Further evidence of the close association of the ancestors of the Osco-Umbrians and the Gmc. tribes in the elaboration of their socio-legal institutions is given by such correspondences as:

(a) *sverruneí.* iurato ('sworn in') in the Cippus Abellanus: Go. *swarjan* 'swear';

(b) Osc. *tanginom.* sententiam: Go. *þagkjan* 'think', to which *tongere* 'know' (Praenestian *tongitio* 'notion'), corresponds in Lat.;

(c) *vereiiaí.* iuuentuti (Pompei inscription): Go. *warjan* 'defend' (applying to an association of young people, receiving a military training and especially entrusted with the defence of the gates to the community settlement). To the same military sphere presumably belong:

(a) Osc. *cadeis* 'hatred, enmity': Go. *hatis*, ON *hatr* 'hate' (the word occurs with the meaning 'grief' outside Gmc. and Italic, e.g., in Gk. *kēdos*);

(b) Lat. *turma* (orig. cavalry unit of 30 men and 3 officers) 'squadron' > 'crowd'; OE *þrymm* 'multitude', *þrymma* 'warrior', OS *heruthrum* 'fatal power of the sword'. Names of weapons also occur in this common Italo-Gmc. vocabulary:

(a) ON *spjǫr*, OHG *sper:* Lat. *sparus* 'spear, javelin';

(b) Go. *arhvazna*, ON *ǫr*, OE *earh* 'arrow': Lat. *arcus* 'bow'. Characteristic of the social organization of the military is ON *seggr* 'member of the retinue of a chief': Lat. *socius* 'companion, associate', actually 'follower' (cf. Lat. *sequor* 'to follow').

Social implications with relation to age-groups in both societies are presumably also contained in the correspondence between Go. *junda* and Lat. *iuventa* 'youth', although they are unfortunately not specifically documented.

Particularly significant are the religious correspondences in the light of the common mythological traditions described by Dumézil (1949; 1959; 1966): thus, the ON *blōtgoði* ('pagan priest') assumes the same function in Old Scandinavian society as the *flāmen* in the early Latin world, and therefore the etymological connection of the latter's name with Go. *blōtan* 'honor', OHG *bluozan*, ON *blōta* 'sacrifice' appears to be more plausible than the phonetically difficult link with Skt. *brahman*. This view seems to be further confirmed by the correspondence Lat. *sacena* 'ritual knife': Gmc. **saxsa-* 'knife' (in the compound *mati-saxs-* [Ger. *Messer*] of which the first element means 'meal')–actually cognate with Lat. *saxum* 'stone' and related with the taboo of *iron*, which excludes the use of this metal in sacrificial rites (in OS *saks* and in OE *seax* have taken the meaning 'sword', hence the tribal name *Saxon* based on their typical weapon; Lat. *sacēna* reflects an older **sakesna* which has a direct correspondent in OHG *sagesna;* OS *segisna* 'scythe').

Terms of agriculture and names of manufactured instruments attest to a relatively advanced culture, which is also confirmed by the occurrence of such terms as a common word for 'year': Go. *aþn:* Lat. *annus* (< **atnos*), Osco-Umbrian *akno* (with *-kn-* < *-tn-*) or the shared term for 'account': Go. *raþjo*, OS *rethia*, OHG *redea:* Lat. *ratiō*, further connected with **raða* 'number' appearing as the second component of ON *hundrað* 'hundred' and corresponding to Lat. *ratum* 'calculated' (cf. ON *tīrøðr* 'computed by tens').

Culturally less significant, but pointing to the early date of the contacts are a set of words designating such parts of the body as the tongue, (Go. *tuggō*, OHG *zunga:* OLat. *dingua* > Lat. *lingua*), the neck (Go., OHG *hals:* Lat. *collus*), the lip (Norw. *lepe* < *lepan-;* OFra. *lepur* < **lepura-;* OE

lippa < **lepjan-:* Lat. *labium, labrum*), the toe (ON *tā*, OHG *zeha:* Lat. *digitus* 'finger'), the hand (ON *mund*, OHG *munt* 'hand', also 'defence, guardian': Lat. *manus*), the shoulder (ON *ǫxl:* OHG *ahsala*, Lat. *āla* < **agslā* 'wing, shoulder, underarm'), etc. The age of this layer of isoglosses is further confirmed by the traces of heteroclitic declension in *-r-/-n-* in the word for 'lip'. Correlated with these oldest isoglosses are such phonetic changes as the development of the original IE **-tt-* in *-ss-* in Gmc. and Lat. (e.g., ON, OE *sess* 'seat': Lat. *sessus* to *sedēre* 'sit'), which is also shared by Celtic, or such morphological innovations as the distributive numerals with the suffix *-no-* (ON *tvennr* 'double', OE *ġetwinne* 'twins': Lat. *bīnī* 'two' < **dwisno-*) or the adverbs of direction in *-nē* (Go. *innana* 'from within', *ūtana*, OHG *ūzan(a)* 'on the outside': Lat. *supernē* 'from above'). Such derivations from old IE stems with specific affixes contrast with parallel innovations of Lat. and Gmc. which obviously took place at a later period, e.g., verbal formations with a prefix:

Go. *aftiuhan:* Lat. *abdūcere* 'to lead away';
Go. *attiuhan:* Lat. *addūcere* 'to bring (to)';
Go. *gatiuhan:* Lat. *condūcere* 'to bring together', etc.,

or the negation in continental Gmc. languages and in Lat., e.g. OS *nēn*, OHG *nein*, Du. *neen* < **ni+ain-:* OLat. *nœnum* (from **ne+oinom*), Lat. *nōn*. It is characteristic that these new formations were not common Gmc., but appeared in the separate languages, which, at different times, came into the sphere of influence of Lat. It is, indeed, quite noticeable that they do not occur in the Scand. languages (Polomé 1966). The age of the lexical isoglosses discussed here is, however, guaranteed by their phonetic shape as well as by such cultural clues as the occurrence among them of Go. *aiz* 'ore, money', ON *eir* 'ore, copper', OHG *ēr* 'ore': Lat. *aes* 'copper, bronze', with the derived adjective OE *æren*, OHG *ērīn:* Lat. *aenus*, Umbr. *ahesnes* < **ayes-no-* 'of bronze, of copper'–a root that does not occur elsewhere in Europe, but is found in Indo-Iranian with the meaning 'metal'. This correspondence undoubtedly refers the contact period to the early bronze age (as far back as the second millenium B.C.). It was interrupted by the successive departures of the Latino-Faliscan and Osco-Umbrian tribes to the territory of the Apennines and was renewed only at the end of the first millenium B.C., when the Gmc. tribes first started colliding with the Roman state and were ultimately drawn progressively into the orbit of Western European civilization.

8. Germanic-Celtic correspondences

Only after a second wave of migrations sent the ancestors of the Osco-Umbrians south in turn did the Gmc. and Celtic tribes come into direct contact–the fact that they share the term **īsarno-* for 'iron' confirming the rather recent date of this common cultural development. The interpenetration of the two linguistic groups was, however, very limited, since there are apparently no undisputable common innovations between them in the field of phonology and morphology, Germano-Celtic correspondences remaining essentially restricted to lexical items. Far-reaching conclusions have been drawn from these isoglosses, but this wide range of words designating natural phenomena, pertaining to social and economic life, describing the conditions of every-day life have to be interpreted with utmost care: in the absence of precise chronological criteria, it is often difficult to establish which words are inherited from the original population of the territories over which the Gmc. and Celtic tribes spread. Quite a few words, considered as exclusively Celto-Gmc. are only apparently so: later linguistic changes and the limited sources of information from historical times have entailed the loss of numerous cognate terms in related IE dialects. Moreover, social, economical, political, and cultural factors have often enriched definite spheres of the vocabulary at the expense of others: what looks like belonging to a common stock may merely be a borrowing from one dialect to another, i.e. for lack of a rigorously established chronology of the phonological changes differentiating Gmc. from Celtic, it is often impossible to determine whether Gmc. words coinciding etymologically with Celtic words are perhaps borrowed from Celtic dialects before the Gmc. consonant shift. One group of common terms can at least be considered as old, i.e. those reflecting the loss of IE /p/ in Celtic, e.g., OHG *fiuhta* 'spruce' (Ger. *Fichte*) versus OIr. *ochtach* (from **puktāko-*), both derived from an IE theme **pewk-*, for which only Gmc. and Celtic show a *-t-* enlargement. One wonders, though, whether the term originally belonged to Gmc.: the common spruce does not seem to have penetrated into the original territory of the Gmc. tribes; there is no correspondent to OHG *fiuhta* in any other Gmc. dialect, except for the occurrence of the term in an OS glossary. Since its area of expansion covers territories into which the Gmc. tribes do not seem to have penetrated before the Bronze Age, it is quite possible that the term designating the unfamiliar tree was borrowed by the Gmc. invaders from the language of the autochtonous population. A Celtic dialect showing a form [p^hewkta] might be the source–and, if so, OHG *fiuhta* would reflect one of the oldest borrowings from Celtic into Gmc.,[3] prior to the loss of the initial /p/, and accordingly older

[3] P. Friedrich (1970:35–8) does not produce any convincing argument to

than such borrowings as OE *lēad*, OLG *lōd* 'lead', to be compared with OIr. *luaide*, from an IE verbal theme **plew-*, or OHG *leder*, OE *leðer*, ON *leðr* 'leather', to be compared with OIr. *lethar*, Welsh *lledr*, Bret. *ler*, reflecting an IE prototype **ple-tro-*. Particularly interesting is also the religious terminology, where the name of the 'ghost'–MIr. *aurddrach:* ON *draugr*–reflects a parallel, if not common, semantic evolution versus Skt. *drogha-*–'hostility, treason', Av. *draoga* 'lie'. In the case of Welsh *bwg:* ME *bugge* 'ghost' (still found in Shakespeare), it is difficult to establish whether the Gmc. word is not borrowed from Celtic, since neither the dialectal Ger. word *bögg(e)*, nor Lith. *bužỹs* 'scarecrow' warrant its being inherited from the proto-language. The same problem occurs with OIr. *rún* 'secret', Welsh *rhin*, Bret. *rin* versus Gmc. **rūnō-* (OHG *rūna*, OE *rūn*, etc.), where it has been attempted to derive the Gmc. term from Celtic: the convincing etymology proposed by Dumézil (1939:24, fn. 3) rather suggests the reverse. Since the runes represent a continued use of the signs resorted to in oldest times by the Gmc. tribes for divinatory purposes and constitute originally a magic means to 'bind', as Odin still uses them, it is plausible to connect their name with the IE theme $*H_3w$-*er-* meaning 'bind', also found in the Hitt. verb *hurtaliya-* 'chant a magical formula'. If so, one would also be tempted to confirm the derivation of ON *seiðr* 'charm, incantation': MWelsh *hut*, Welsh, Bret. *hud* 'magic', from IE $*sH_2y$- 'bind' (found, e.g., in Hitt. *ishiya-* 'bind', OHG *seito* 'string, fetter' [> Ger. *Saite*], Lett. *saite* 'bond, fetter'), the more so since Lith. *saitas* 'interpretation of signs, prophecy' is usually connected with this group. However, this etymology is not convincing, because the Scand. *seiðr* reflects a lower kind of magic contrasting with the 'noble' magic of Odin; nevertheless, its use by the Skalds with the meaning 'song' does not imply that this is its original 'meaning,' as is assumed by those who compare it with Gk. *oímē* 'song'–an unwarranted etymology as well, since the Gk. word belongs together with Gk. *oĩmos*, 'way' in the meaning of 'progress of a story', hence 'recitation, poem, song'. Actually, the original meaning of ON *seiðr* remains obscure, and isolated OE forms like *sidsa* (kind of spell) or *-siden* (in the compound *ælf-siden* 'elfin influence') hardly throw any light upon it. MWelsh *hut* reflects Celtic **soitos*, which only occurs in Brythonic; it occurs in no context whatsoever where it could compare with the kind of magic described by ON *seiðr*. Accordingly, the problem of the relation between the relevant Gmc. and Celtic words remains unresolved.

These examples illustrate the complexity of the linguistic relationship

back up the assumption that OHG *fiuhta* 'spruce' should be a direct continuation of a Gmc. derivation from IE **pewk̑-* (: Gk. *peúkē* 'spruce, spruce forest, pine'; Lith. *pušìs* 'spruce, pine').

between Celtic and Gmc. and the necessity of carefully revising the long lists of correspondences often quoted to postulate a Celtic hegemony over the Gmc. tribes in prehistoric times (e.g., Hubert 1932:76–83). Thus, the correspondence of the terms for 'law' (OIr. *recht*, Welsh *rhaith*, Bret. *reizh*, from Celtic **rektu-*, found in the Gaul. personal name *Rectugenos:* ON *rettr* [*u*-stem]) does not prove anything, since the same moral and juridical meaning also occurs in Lat. Similarly, no conclusion can be drawn from the plausible chronological connection between Go. *liuga* 'marriage' and OIr. *luige*, Welsh *llw* 'oath', reflecting IE prototype **lughyom*, since the concept of 'oath' is alien to the Gmc. pattern of marriage. As Güntert (1923:68) has proposed, it is preferable to accept a divergent semantic development from the meaning of 'juridical bond'–an interpretation that *wanc-luga* 'nicht fest bindende Ehe' in the Lex Baiuvariorum would confirm. On the contrary, Go. *arbi* 'inheritance', *arbja* 'heir' (Ger. *das Erbe; der Erbe*): OIr. *orbe, orpe* (neut.) 'inheritance': (masc.) 'heir' (also found in the Gaul. personal name *Orbius*); Go. *aiþs* 'oath' (Ger. *Eid*): OIr. *œth* 'oath'; Go. *freis* 'free' (Ger. *frei*): Welsh *rhydd* 'free', show a common semantic development from IE concepts which were not specialized to the juridical field. There is, however, no reason why this would reflect an originally Celtic social development, in spite of the fact that the deep change in status of the orphan implied by the first comparison cannot have taken place within the framework of Gmc. customary law: actually, the parallel semantic evolution of PIE **gheH*$_1$*r*-–expressing 'deprivation' in Lat., where *hērēs* means 'heir' suggests that IE **orbhos* (Lat. *orbus*) must have originally meant 'deprived of'–a meaning that is preserved in Lat., and that could be confirmed by the etymological link with Hitt. *harp-* 'sever', implying a PIE theme I **H*$_2$*er-bh-* (in the *o*-grade in **orbhos*). As for the specialization of the meaning of IE **oitos* in the Celtic and Gmc. words for 'oath', while Gk. *oîtos* means 'fate, destiny', another derivative from the root **ey-* 'go' is to be found with the meaning 'oath', namely the allegedly (dialectal) Gk. *ítas* in Hesychios. The case of Welsh *rhydd* 'free': Go. *freis* is more complex; the words correspond formally with Skt. *priyá-* 'loved' and are derived from the IE verbal theme **pr-eH*$_2$*-y-* 'love', occurring in Gmc. with the same meaning in Go. *frijon*, ON *frjā*, etc. One wonders whether the meaning 'free' is actually the result of a Germano-Celtic evolution, since it is well known that the IE people had a hierarchized social organization, in which the *clan* constituted the basic unit; beyond the classic bonds, they were linked together in the wider *Aryan* community, inside of which all members were supposed to be on friendly terms so as to ensure the cohesiveness of the social body, over which the sovereign god *Aryaman*–whose name has survived in Ossetic *limæn-* was assumed to preside. On account of

their contacts with ethnically different peoples, the *Aryas* became better aware of their solidarity and developed a complex of superiority over the allogenous bulk of the subdued population; in the social structure that resulted from the IE conquest, the *Arya* was the only one to enjoy full civil rights. To define the social status of the leading minority, in contrast with the bondage imposed upon the vanquished, the dialectal words for 'free' were coined. As has already been shown, Gk. *eleútheros* and Lat. *līber* 'free' originally meant 'of lawful birth': such a birth determines the position of a person in society and makes him a full-fledged member of the community–a free citizen. Similarly, Slavic *svoboda* 'freedom' originally indicates belonging to the prevailing ethnic community: the term is derived from the IE pronominal stem **s(w)o-* (Lat. *suus*), which indicates what exists autonomously and applies in particular to the members of a social group (cf. Lat. *sodalis* 'member of a brotherhood, a corporation'), it is connected to Go. *sibja* 'family group, kinship' (Ger. *Sippe*) and to Thracian *Sabazios*, name of the God corresponding to the Roman *Līber*. Accordingly, Welsh *rhydd:* Go. *freis* appear as one of the dialectal substitutes of the IE term **aryo-*, with its new social connotations. Whereas it survives in OIr. *aire* 'nobleman, head of a lineage, free peasant (landowner)', with meanings reflecting the development sketched, there is no trace of it in Brythonic, and its assumed traces in Gmc. are quite disputable. It is consequently probable that similar circumstances have induced the two linguistic groups to express the social discrimination resulting from conquest by a parallel semantic evolution of the same element belonging to the common stock of IE vocabulary; a lexical correspondence like Welsh *rhydd:* Go. *freis* merely reflects the existence of a similar Gmc. and Celtic political and social organization, and does not suggest a closer relationship in the field of institutions than the correspondence between Lat. *līber* and Gk. *eleútheros* does.

There is, nevertheless, apparently some linguistic evidence of a politico-cultural hegemony of Celtic over the Gmc. world, e.g., the Gmc. term **rīk-* which most scholars consider as a very old borrowing from Celtic on account of its vocalism. Since IE *ē* is originally preserved in Gmc. the IE theme **rēg-* 'king' (Lat. *rēx*) should be reflected by Gmc. **rēk-*, whereas in Celtic *ē* became *ī*, hence **rīg-*, e.g. in *Caturīges* 'kings of combat', *Rīgomagus* (Ger. *Remagen*) 'field of the king', which form appears in the oldest Gmc. personal names as **rīk-*. It is not excluded, though, that a blend took place in Gmc. between **rek-* (ON *folkrekr* 'sovereign'; OHG *rechenon*, translating Lat. *rĕgere* in Notker), reflecting IE **reǵ-* (Lat. *rĕgere* 'direct'), and **raikjan-* 'reach' (Ger. *reichen*) under the influence of the Celtic term.

The OHG term *ambaht* 'servant', on the contrary, is doubtlessly

directly borrowed from Celtic, though there is no precise clue as to the date of the borrowing.

It is not possible to examine the long list of lexical correspondences between Celtic and Gmc. used to back up theses on the type of relationship between the two linguistic groups, but the examples quoted here may have given a sufficiently clear picture of the complexity of the problem, especially from the chronological point of view, and have stressed the necessity of operating very cautiously in the interpretation of the facts. Archeological evidence should be used on a wider scale to integrate the correspondences in the framework of the cultural life of the prehistoric community to which they refer. Only a prudent and well-documented synthesis of the data of archeology, linguistics, history of religions, ethnography, and sociology will enable us to interpret them correctly and to establish their relative chronology. The prejudice of the Celtologists of the 19th century according to whom the Celts only received very little in exchange for their rich cultural contribution to the development of the Gmc. world, will have to be abandoned. More attention will also have to be given to more recent exchanges and contacts due to the migration of the Gmc. tribes and the establishment of a linguistic boundary between Gmc. and Celtic in Gallia Belgica. Besides, numerous premature conclusions based on a shaky chronology of phonological changes need revision; thus, to claim that Go. *lēkeis* 'physician' has been borrowed from Celtic before the shift of IE *-*g*- into Gmc. *-*k*- and after the loss of intervocalic -*p*- in Celtic, one has to imply that the Gmc. **ē*, results from a contraction of which no parallel can be found. Besides, if Stokes is right in assuming **lēpagi*- as the prototype of OIr. *liaig*, the preservation of *ē* in Celtic until the time of the Gmc. borrowing requires further explanation, since the Celtic change of *ē* to **ī* must have taken place earlier than the Gmc. shift of the voiced stops, as evidenced by the current interpretation of the correspondence between Go. *reiks*, ON *rīkr:* Gaul. *(Bitu)rīges*. This tends to prove that the study of the Celto-Gmc. correspondences still presents quite a few interesting problems in connection with our knowledge of linguistic and cultural relations in western Europe. Even the negative evidence is most instructive, e.g., in the case of the Go. words *alew* 'oil' and *siponeis* 'follower' allegedly borrowed from Celtic. The latter presupposed a Celtic form **sepānios* of which there is no evidence; besides, the implied root **sek^{w}*- only appears in adverbs meaning 'beyond' or 'without' (cf. Lat. *secus*), except in OIr. where the noun of action *sechum* < **sek^{w}emā* is derived from *sechim* 'I follow'; moreover, the cultural background of the loan remains vague, so that another explanation can be suggested: IE seems to have had a root **sep*- meaning 'to busy oneself, attend to', attested by Skt. *sápati* and

found in the neut. derivative **sep-el* implied by the denominatives Skt. *saparyáti*. veneratur: Lat. *sepelit* 'shrouds (a corpse)'; the same root can be contained in the Ill. tribal name *Separi* and in the Ven. gentilice *Sep(p)iena*, to which Pisani also connects Raet. *sipianusa* (with *ĭ* from **ĕ*). It would accordingly be justifiable to assume that the Gmc. term was borrowed from Ven. **sep-on-io*. venerator, formed like *Fougonia* (Ateste): Ven. *vhouχ-* (= Gk. *pheúgo*), or *Gailonius* (Aquileia): OHG *geil* 'lively, exuberant', Lith. *gailùs* 'violent'. The cultural setting in which this borrowing took place would be the invasion of the Cimbri and the Teutones, in the course of which the Gmc. tribes settled for a while in Venetia after inflicting a severe defeat to Cn. Carbo at Noreia in 113 B.C., until they were in turn slaughtered by Marius in 101 B.C. near Vercellae. During this period, they were in close contact with the Venetes as well as with the Raetic population of the eastern Alps and the upper basin of the Danube, whose language is characterized by the change of *ŏ* to *ă* which does *not* occur in Celtic. Therefore, rather than ascribe to Celtic influence the introduction of oil in the Gmc. world, it is more plausible to suppose a Raet. prototype **alēwa-* reflecting the 2nd century B.C. VLat. form **olēwo-* as the source of Go. *alew*. The scattered remnants of the defeated Cimbri and Teutones would have brought the word with the product to their northern homeland–a fact that is also suggested by the borrowing of Lat. *lucerna* 'oil-lamp', evidenced by Go. *lukarn* 'light' (Polomé 1953:114–7).

Thus, the revision of the Celtic-Gmc. correspondences opens wide scopes of research and new perspectives on early Gmc. cultural history, even when reinterpretation of the facts leads to the rejection of some alleged isoglosses.

The Grouping and Separation of the Germanic Languages

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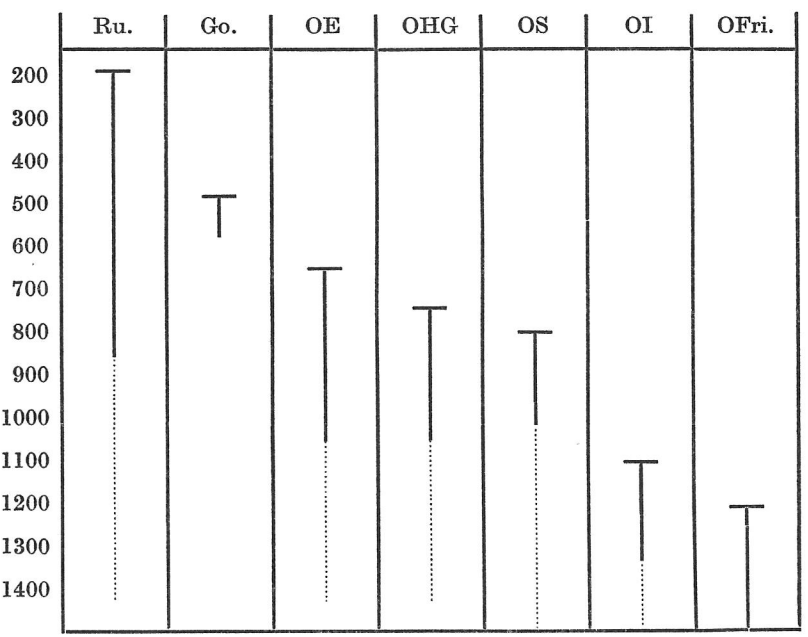
Outline

1. Introduction 72
2. Historical sources and history of linguistic research 75
3. Features used for classification 85
4. Conclusion 94

1. Introduction

1.0 The question of the grouping of the Gmc. languages after the breaking up of the PGmc. unity has been of concern to Gmc. scholars for many years. Around the turn of the century a reasonable degree of agreement seemed to have been reached. WGmc., comprising later English, Frisian, Netherlandic (Dutch-Flemish), and German was assumed to have as its counterparts a NGmc. and EGmc., and the main areas of disagreement centered around the closeness of relationship between the latter two. Shortly thereafter doubts about the validity of the WGmc. theory began to emerge which culminated in the total rejection of a WGmc. unity. The scholarship of the forties and fifties has proposed various alternate possibilities for grouping the Gmc. languages. The present state of the research concerning this question is characterized by a number of mutually exclusive views and the possibility of a synthesis is far from being assured (Rösel 1962:1). The purpose of this discussion is to survey the various classifications which have been advanced, to examine the linguistic materials on which they have been based and to attempt an evaluative summary of current opinon. Before we can do this, however, it is necessary to list and examine the difficulties which stand in the way of agreement; difficulties which are characteristic of a situation when extensive materials of a language group are accessible



only from a time which postdates by many centuries the division of the proto-language into subgroups.

1.1 The first difficulty which we encounter in attempting to group the Gmc. languages concerns the great chronological differences among their earliest attested forms–differences of up to a thousand years. The table below indicates these time differences in graphic form.

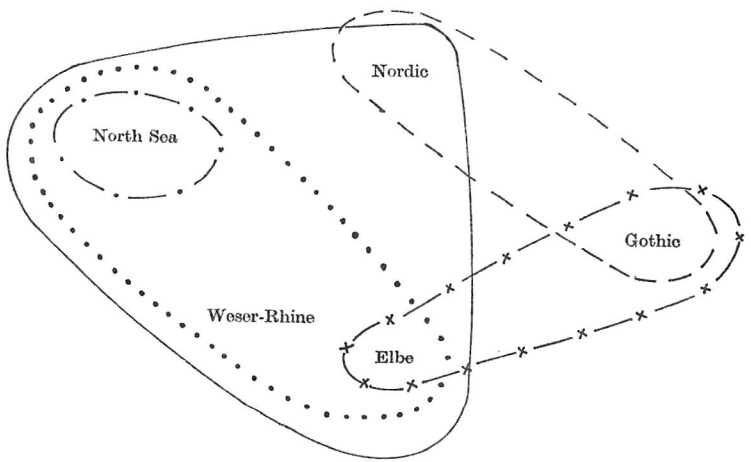
This means that we are faced not only with many years of unattested, undocumented linguistic history, but also that the available sources are not simultaneous but differ among each other by many centuries. OI and OFri., for example, are contemporary not with OE and OHG, but more nearly with ME and MHG. A perusal of the literature on Ausgliederung shows many instances where the implications of this time-difference among the attested Gmc. languages have been ignored or passed over.

1.2 A second grave difficulty is the lack of agreement on the nature of a proto-language. On the one hand we have scholars who claim that PGmc. or PIE never existed as such (Pisani 1949:xxvi; Porzig 1954:53), that 'allgemeine Erwägungen' force us to assume a dialectal stratification or diversification within the proto-language. These 'general considerations' refer to our knowledge of the behavior of existing languages where we always find differentiation between geographical and sociological groups, where we can observe that no two speakers employ exactly the same language, where even a given idiolect changes in time and varies in style. On the other hand we find scholars who are equally explicit in their rejection of a diversified proto-language, who insist that the term proto-language can only be attached to non-dialectal and timeless formulae (Lüdtke 1957).

The implications of the comparative method and the proto-language uniformity assumption have been vigorously discussed by linguists for a number of years (Hall 1964:305; Hockett 1958:486; Kent 1948:194; Kufner 1963:509; Lehmann 1962; Marchand 1955a; Pulgram 1953; 1955; 1959; Twaddell 1948) but a full consensus has not been reached so far. Dyen (1969) has recently provided us with a critical evaluation of existing opinion and the suggestion that the assumption of proto-language uniformity should be replaced by a hypothesis regarding the relation of the reconstruction of the phonemic system to some idiolect which actually did occur, and by an assumption regarding the interrelevance of non-irreconcilable reconstructions. As long as the probabilistic nature of our reconstructions is firmly kept in mind the validity and usefulness of the comparative method remains. The time has come when we must combine the insights provided by modern dialect geography with the results of the application of the comparative method. Both the Family Tree Model (see 2.2.1) and the Wave Model (see below) should be seen as valuable

visualizations, as legitimate didactic devices for the two principal types of linguistic differentiation: language split and dialect mixture. Many of the studies which we will cite in our discussion will be seen to overemphasize one or the other of these models or fail to show full awareness of the questions involved.

THE WAVE MODEL



1.3 The third difficulty which we face in the discussion of the Gmc. Ausgliederung is intimately connected with the problems which we have just mentioned. When we proceed to the examination of the material on which the various classifications are based we encounter difficulties in deciding whether a given feature found in two or more languages is attributable to inheritance (genetische Entwicklung) from the protolanguage or due to borrowing at a later time when the respective linguistic groups were settled in adjacent or proximate geographical areas (Kontaktentwicklung). The available prehistorical, external, mainly archeological evidence indicates that the Gmc. tribes lived at various times after the PGmc. stage in differing constellations of proximity, retained close contacts with each other even after migrations, so that linguistic borrowing is likely to have taken place for long periods of time. The correspondences overlap in such a way that in many instances both possibilities, common inheritance and borrowing, must be taken into consideration.
1.4 A fourth source of diagreement in the grouping and classification of the Gmc. languages after the split is the relative weight given to a

certain difference or correspondence among the various Gmc. languages. Groupings have been based on vastly different criteria, ranging from one isogloss, e.g. the ending of the nom. sg. of the *a*-stems like *dags* (Krause 1953:41) or the Verschärfung (Schwarz 1951:65) through large numbers of lexical correspondences (Kolb 1957; Arndt 1959; Lerchner 1965) to detailed morphological studies (Adamus 1962; Rösel 1962). It stands to reason that differences in method, in criteria, and in the importance or weight assigned to these various features must lead to differences in results. The actual classification of the early dialects has been based primarily on phonological evidence. Lexical and morphological studies did not begin until the 1950's, though Schulze (1933:476) had severely critized the preponderance of phonological criteria in a note before the Prussian Academy as early as 1932. He found support for an original bipartite division into EGmc.and WGmc. in word-formation (WGmc. *ald* vs. Go. *alþeis*, *usalþans* and OI *aldenn*), in grammatical gender (Go. *rign*, *hlaiw*), in word order (position of the pronominal possessive expression and the reflexive pronoun), and in the use of words (Go. *megs*, *barn* with relation to OHG, OS *kind* and OE *cild*). These suggestions were not taken up by subsequent scholars.

1.5 These four questions, the time lag between PGmc. and the attestations of the Gmc. languages, the nature of PGmc. and our methods of reconstruction, the difference between inherited and borrowed forms, and the relative weight assigned to a given criterion, must be borne in mind as we discuss the history of the scholarship pertaining to the grouping of the Gmc. languages and the materials on which such groupings are based. The four questions cannot, of course, be viewed independently. After an early split, for example, the resulting languages may have been overlaid by subsequent modifications so that it is impossible to clarify the early situation to the satisfaction of all specialists. The *jj*, *ww* situation may be an example of this possibility (see below 3.1.1).

2. Historical sources and history of linguistic research

2.0 The period under discussion is primarily pre-literary and thus we depend largely on the data provided by non-Gmc. historiographers, most of them either Roman or Greek. Only very few of the historians seem to have been in the areas where the Gmc. tribes were settled, and we may assume that those that did come into contact with the people they describe were ignorant of their language, were treated as outsiders, and described what they saw and heard from their own point of view and for their own purposes.

2.1 This latter remark is certainly true of P. Cornelius Tacitus (approx.

60–120 A.D.) whose *Germania* (written 98 A.D.) was intended to contrast the happy natural state of the Gmc. tribes with the luxurious, but in his view decadent, state of affairs in Rome. He himself never was in the Gmc. area, but his ethnographic account is the most extensive and reliable source we have, and some details in the *Germania* are supported by archeological finds (Glob 1969). Of terminological importance for the history of research is the fact that he introduces the division into Istveonic, Ingveonic, and Erminonic tribes (2.2.3, 3.3.5, 4.4).

Caesar wrote his *Commentarii de bello Gallico* in 52–51 B.C. on the basis of his annual reports to Rome (beginning in 58 B.C.). These commentaries are important because through them Rome received detailed information about the Gmc. tribes for the first time. He had conquered Ariovistus in 58 B.C., and he had crossed the Rhine twice (55 and 53 B.C.) to do battle with the Gmc. settlers there. Roman knowledge about 'Germania' prior to Tacitus was considerably increased in the 1st century A.D. through trade relations: on land the Roman traders penetrated to the Elbe, on sea they reached the tip of Jutland. M. Vipsanius Agrippa designed the map of the world which was completed only after his death (7–14 A.D.). It served as one of the sources that Tacitus used.

Of considerable value to us are the *Geographica* of Strabo (63 B.C.–19 A.D.), the seventh book of which is devoted to *Germania*. Again, he himself never was in the area but he collected all available sources carefully, used the official reports of the wars and apparently interviewed participants in these wars.

The Alexandrian geographer Claudius Ptolemaeus described Germania around 150 A.D. His main source was Marinus of Tyrus of the time of Emperor Hadrian. He lists 69 Gmc. tribes; Tacitus had named only 40. Only 22 of these tribes occur in both works. Ptolemaeus' primary objective was, of course, geographical, and much of what he describes is based on the itineraries of Roman tradesmen, including many trading posts and the names of small tribes whose permission for trading and transit was needed by the Romans. The original of his work was lost, and the extant manuscripts contain many contradictions and obvious misspellings.

The events of the following centuries are very poorly attested, and much of what was written was either totally lost or is available to us only in fragments or as citations in later writers. As a result we are very poorly informed about the history of the Gmc. tribes from the 2nd to the 6th century. The most important source from the 6th century is the history of the Franks by Gregory of Tours (died 594) which goes up to 591. As one would expect, the most valuable part covers the time in which he

lived and where he could observe first-hand. Brehaut's translation into English has recently been reprinted (1965).

Cassiodorus' history of the Goths is lost, but we know excerpts from it from the *Getica* of Jordanes (551). The *Getica* has recently been the subject of a very thorough and careful evaluation by Norbert Wagner (1967), who argues that neither archeology nor linguistics can independently prove that the Goths originated in Scandinavia: our only dependable source for the Scandinavian origin of the Goths is Jordanes. Around 790 the Langobard Paulus Diaconus (Warnefried) wrote a history of his people. He was still acquainted with the heroic epics of the migration period and the settlement of his people in Italy. Widukind of Corvey provides us with a history of the Saxons, and Bede (731) reports on the Anglo-Saxons in his ecclesiastical history (Schmidt 1904; for a summary cf. Schwarz 1956:9–16).

At best these historical sources can provide us with information about the names of the Gmc. tribes, their location and subsequent migrations, some ethnographic information though often unreliable and slanted, but do not provide us with dependable data on the language or languages which they spoke. Some use has been made, of course, of the onomastic information provided by the historiographers but it is the philologists and linguists who have formulated hypotheses about the grouping of the Gmc. tribes, and have attempted to support such groupings by means of linguistic data. Let us now examine the history of the problem as dealt with by philologists and linguists.

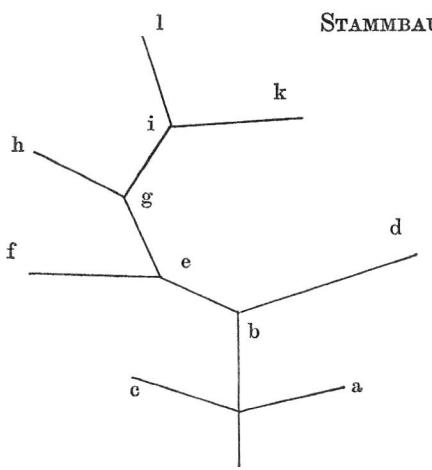
2.2.0 Right from the beginning we encounter considerable differences of opinion. Adelung (1809:175–7) set up two groups of the Gmc. languages, Scandinavian on the one hand, and 'Deutsch' on the other, comprising all languages south of the Baltic and the river Eider. The southern group was further divided into Swabian in the east (incl. Go.) and Cimbrian in the west. Rask (1818) follows Adelung in this bipartite division: Scandinavian, and 'Germanic' which includes Go. Jakob Grimm (1819:ii, Vorrede) rejects Adelung's approach to philology, calls it 'verwerflich, ja thöricht,' and seems to propose a grouping into four main tribes (1819: xviii; cf. Maurer ^{3}1952:17–8):

(1) Goths, together with Gepides, Herulians, and Vandals
(2) Langobards, Bavarians, Burgundians, Alemannians, Franks
(3) Saxons, Westphalians, Frisians, Angles
(4) Scandinavians.

To Grimm these were not totally disparate tribes, but connected by various 'transitional' tribes, e.g. the first two groups were closer to each other than to the other two groups. The Franks were intermediary between groups 2 and 3; the Frisians and Angles seemed to link groups

3 and 4, and the Marcomanni ('vermutlich') between 1 and 2. He states expressly that no connecting link could be found between groups 1 and 4, i.e. between EGmc. and Scandinavian. Grimm modified his classification subsequently, but his basic grouping of Go. and High Ger. as against Scandinavian was retained, despite his acknowledgment of the many similarities between Go. and Scandinavian: 'In der ausgiebig und ungestört erhaltnen altn. Sprache sind begreiflich viele Berührungen mit der gothischen gesichert worden, die unserer hochdeutschen verloren giengen, ohne daß dadurch der wesentlich hochdeutschere Charakter des Gothischen beeinträchtigt wird. . . . Sonst fügt sich in Lauten und Wörtern die nordische Sprache ungemein zur Gothischen.' (Grimm 1848:1034). Contrary to the High Ger.-Go. grouping proposed by Grimm was Holtzmann's view, first expressed in 1839, that Go. and OI must at one time have belonged together. He used this argument to support his thesis that Go. should be considered the 'parent' of the Gmc. languages: '. . . daß das Isländische leichter die gerade Fortsetzung des Got. sein könnte, als irgendeine der andern deutschen Sprachen' (1839:1060).

2.2.1 The tripartite division and classification which is the view still to be found in the most commonly used handbooks (Prokosch, Streitberg, Hirt) was first proposed by Schleicher (1860:94–6). He describes the relationship in the form of a genealogical tree, the well-known



STAMMBAUM

a) Gotisch
b) Deutsch
c) Nordisch
d) Hochdeutsch
e) Niederdeutsch im weiteren Sinne
f) Friesisch
g) Sächsisch
h) Angelsächsisch
i) Altsächsisch
k) Plattdeutsch
l) Niederländisch

Deutsche Grundsprache

He stresses the close relationship of 'Nordic' and 'Gothic' by citing the formation of the 2 sg. pret. of strong verbs through the addition of *-t:* '(Das Altnordische ist) mit Sicherheit als ein dem Dt. und Gotischen

coordinierter, unmöglich weder aus dem einen noch aus dem andern hervorgegangener Sprachzweig zu erkennen' (1860:94).

On the basis not of linguistic data but of mythological and ethnological considerations Müllenhoff proposed a bipartite division of Gmc. into EGmc. and WGmc., and the establishment of a WGmc. unity: 'Wenn aber die drei westlichen Stämme, d.h. die Völker vom Rhein bis zur Oder, aus denen später die Bewohner des heutigen Deutschlands, der Niederlande, Englands, Nordamerikas hervorgegangen sind, sich von einem gemeinschaftlichen mythischen Stammvater ableiteten und durch eine mythische Genealogie verbanden, so müssen sie für sich einen näheren Zusammenhang angenommen und die Vandili, die Ostvölker, die die Genealogie nicht mehr mit einbegreift, sich früher von ihnen abgetrennt haben. Zu diesen gehören nicht bloß die jenseits der Oder bis zur Weichsel und darüber hinaus angesessenen Germanen, sondern auch die nordischen, scadinavischen [sic] Völker. ... Wir dürfen darnach annehmen, daß in sehr früher Zeit Scadinavien von der Ostsee aus durch deutsche Stämme bevölkert wurde' (Müllenhoff 1900:121).

2.2.2 Scherer follows Müllenhoff's suggestion in his *Zur Geschichte der deutschen Sprache:* 'In Bezug auf das *s* ergibt sich ein wichtiger und merkwürdiger Unterschied zwischen dem Gothischen und Altnordischen einerseits und dem Deutschen und Angelsächsischen andererseits. Ich fasse nach Müllenhoff's Vorschlag jene als die östliche, diese als die westliche Gruppe der germanischen Völker zusammen' (1868:97). In the second edition he incorporates the linguistic evidence provided by Zimmer (1876). In this view the first division into WGmc. and EGmc. (Vandilians) was followed by the separation of the Scandinavians from the 'Vandilians.' The remaining Vandilians (= Goths, Burgundians, Vandals, etc.) became the 'glänzenden Helden der Völkerwanderung,' but this period of glory was followed by rapid extinction (Scherer ²1878:6–9). This view of the descent of Nordic from EGmc. and its early separation from the other Gmc. tribes was quickly subjected to criticism. J. Schmidt pointed out that the correspondences between the Nordic languages and WGmc. would have to be considered pure chance if the hypothesis of a bipartite division into EGmc. (Scandinavian and Go.) and WGmc. (all other Gmc. languages) were correct: 'Das Nordische ist sowohl ostgermanisch als westgermanisch, es bildet den Übergang vom Gotischen zum Angelsächsischen ... kurz, auf allen Gebieten ergibt eine genauere Untersuchung die Unhaltbarkeit der Stammbaumtheorie' (1875:II.452–3). Schmidt's objections, however, did not meet with general acceptance and the assumption of a WGmc. unity advanced by Müllenhoff became well established, modified by Schleicher's view that the division was, in fact, a tripartite one into Go., Nordic, and *Deutsch* (i.e. WGmc.). It is

apparent that the subsequent geographical distribution figured largely in Schleicher's view, and may be the main reason for its popularity and longevity. We find Schleicher's tripartite division as late as 1967, in Krahe's *Historische Laut- und Formenlehre des Gotischen* the second edition of which has been 'auf den neuesten Stand gebracht' by Elmar Seebold (Krahe [2]1967:5, 13–5).

To sum up: At the turn of the century the existence of the WGmc. unity was no longer in question; still the subject of debate was only the choice between a bipartite or a tripartite division, i.e. the relative closeness of Go. and Nordic. Behaghel speaks of the 'Westgermanische Sprachstamm' ([4]1916:1); Sievers mentions the 'sogenannten Westgermanen' ([3]1911:2). Brugmann mentions 'urwestgermanisch,' but concedes that strict delimitations cannot be drawn between PIE and PGmc., and between the latter and PWGmc.: 'Es bleiben diese sogenannten Ursprachen immer schwankende, dehnbare Begriffe' (1902:26–7).

2.2.3 Twentieth-century scholarship challenging the established view was touched off by Wrede who not only pointed out Anglo-Frisian pecularities in OS but also found similar 'Ingveonisms' in the modern Alemannic dialect (1924). Alemannic had always been considered the most conservative descendant of the Erminonic group of Gmc. languages, and if his findings (essentially the loss of nasal before spirant, the uniform ending in the pres. ind. pl. of the verb, and the loss of /r/ in the possessive pronouns *euer* and *unser*) could be proved to be inherited features, the common view of the relationship of Ger. to WGmc. was indeed threatened. At first Wrede was inclined to consider these Alemannic features as outposts from the north ('verdeutschtes Ingväonisch im Norden, reines Deutsch im Süden, auf Kontamination beider beruhendes Mitteldeutsch dazwischen' (1924:274), but later he suspected that the now isolated areas had once been part of a solid continuum. Thus he wanted to replace the reconstructed WGmc. (with its subsequent split into Anglo-Frisian and Proto-German) with a new Ingveonic language which at one time extended from England all over northern and southern Germany to Switzerland, until it was split by a linguistic wedge coming from the southeast resulting in the present relic areas in the southwest and the north. Wrede thought that this wedge was Go. because of certain characteristics shared by Bavarian and Go. (3 sg. masc. pronoun; dual forms; differentiated verb forms in the pres. ind. pl.; retention of nasal before spirant). The language of this everincreasing central zone appeared to Wrede thus as a 'Gothicized WGmc.'

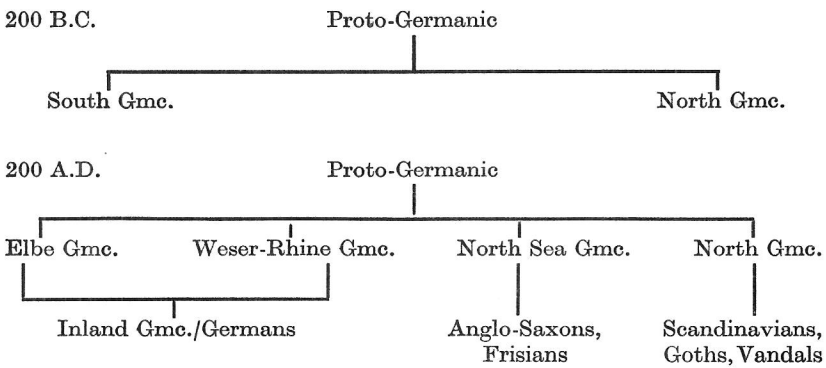
Wrede's thesis was met with considerable criticism, at first directed primarily against the examples which he had cited to support it. Some objections were raised by Frings (1932; 1948:33–42) who moved the

relationship between Go. and Upper Ger. back to the time, presumably the first two centuries of our era, when they were settled in adjacent areas in the northeast, but on the whole he supported Wrede's basic thesis, the coherent extension of 'Ingveonic' from the English Channel to Switzerland. The myth of the powerful 'Gothic wedge' was not finally put to rest until Springer (1941) proved by a detailed historical analysis that Wrede was in error, misled by the purely synchronic materials (descriptions of modern dialects) of the *Sprachatlas* (cf. 3.4.5, 3.4.6, 3.5).

2.2.4 In 1942 Maurer devoted a full-scale study to the question of WGmc., and the grouping of Gmc. languages in general. After carefully listing and describing the various possible classifications he came to the somewhat surprising conclusion indicated by the title of his book: instead of a WGmc. subgrouping he suggested that the most strikingly close relationship is between Scandinavian on the one hand and Alemannic on the other ([3]1952:84). Maurer backs up the linguistic evidence including lexical parallels with various ethnological data, such as house-types, bee stands, types of grain storage, etc. To Maurer linguistic data were of secondary interest, certainly of insufficient Beweiskraft: 'Was die Sprachwissenschaft hier geben kann, bleibt ein dürres Gerippe ohne Fleisch und Blut, ohne Verwurzelung in Zeit und Raum. . . . Eine Erklärung kann meines Erachtens vom rein Sprachlichen her überhaupt nicht gewonnen werden.' ([3]1952:14). It would be excessively puristic, to be sure, to exclude prehistorical archeological evidence, cultural or cultic alignments supplied by the ancient historians or suggestions from the ethnographic studies of the 'Wörter-und-Sachen' school, but our guiding principle–as linguists–must remain the facts supplied by language. Maurer dropped the lexical parallels in the 3rd edition because they were 'eine schwache Stelle des Buches' ([3]1952:6), but the four grammatical observations on which his hypothesis of a close Nordic-Alemannic relationship is based do not seem to be any more convincing. He lists (1) reduced *i*-umlaut; (2) PGmc. /g/ as [g] in Nordic and Upper Ger.; (3) identical development of the initial clusters /wl-, wr-/; and (4) an admittedly very tentative suggestion that PGmc. /ē[1]/ developed identically in Nordic and Upper Ger. ([3]1952:80–4). Although his linguistic evidence was, at best, inconclusive Maurer succeeded in keeping the discussion alive.

2.2.5 Much of the debate was carried on in the numerous reviews of Maurer's book until Schwarz summarized the most convincing arguments in two book-length studies. Most of the linguistic evidence is contained in *Goten, Nordgermanen, Angelsachsen* (1951)–the external history and the various tribal alignments are discussed in *Germanische Stammeskunde* (1956). Schwarz comes to the conclusion (shared by Lehmann 1966; expanded by Zhirmunskij 1961; 1962; 1964; 1965) that we should posit

two subgroups after PGmc., one consisting of the NGmc. and EGmc. dialects (Gotho-Nordic), the other the WGmc. group. Schwarz summarized his views in two charts (1951:276; 1956:39); the first illustrating the situation immediately after PGmc., around 200 B.C., the other depicting the realignments 400 years later, about 200 A.D. (Schwarz refers to peoples, not languages, in his charts, e.g. *Elbgermanen*).



To avoid misunderstandings Schwarz states explicitly (1956:39) that his schematic charts bear no resemblance to the 'früheren Vorstellungen eines Stammbaums.' It is merely an attempt to order the known facts about migrations, tribal alignments, and linguistic developments. He stresses his intention of combining linguistic evidence with the facts known from prehistory by using the methodology which was developed by the linguistic geographers and dialectologists. The evidence used by Schwarz for his grouping consists primarily of innovations either by North(east) Gmc. or by South(west) Gmc. (cf. 3.1ff.).

2.2.6 Schwarz was most vigorously attacked by Kuhn (1952–3; 1955; 1958) whose objections center on three points: (1) The methodology of modern dialect geography has not been sufficiently established to allow its application to prehistoric periods for which linguistic evidence is scanty. (2) Schwarz over-emphasizes the connections between historical events and linguistic developments: specifically he uses tenuous and short-lived suggestions by the prehistorians as a basis for establishing linguistic boundaries. (3) Schwarz equates tribal emigrations with termini ante quem for shared linguistic innovations when all available evidence suggests that tribal migrations did not result in clean-cut splits. Instead, contacts were maintained in many instances for several centuries after a tribal migration.

Schwarz had listed 25 items common to NGmc. and Go. (1951: 144–6);

of these 19 are eliminated because they are retentions rather than innovations, one is eliminated (loss of *dōn* 'do') because common loss of a lexical item proves nothing. Kuhn then subjects the remaining five (see 3.1.1) to rigorous criticism which makes the assumption of a Gotho-Nordic unity appear untenable (1952–3:47–50; 1955:8–16). In his insistence on a NWGmc. unity Kuhn relies too heavily on written evidence for a period when such evidence is extremely scarce. The long-lasting uniformity of the Ru. inscriptions has been explained more convincingly by the assumption that the Ru. language functioned as a koine. The terms koine or Hochsprache are frequently used to characterize the Ru. language, though neither term is very satisfactory. They are apparently used to indicate that Ru. was a traditional, conventional language which seems to have maintained many archaisms. (Zhirmunskij 1964:12; Makaev 1965:49; van Coetsem 1970:18; but see also Antonsen 1967b:20.) Kuhn also stresses unduly his conviction that oceans may function as linguistic centers (1952–3:46; 1955:16–44), as in the case of OE and OS.

2.2.7 Schützeichel (1961) also doubts the applicability of dialectological methods to prehistoric stages of a language, although he is less vehement in his criticism. Nevertheless, he goes Kuhn one better by assigning common Gmc. status to Ru. inscriptions up to 600 A.D. (16), and yet he claims that the majority of the linguistic changes in OE appear in the Ru. inscriptions of around 500 (18). He flatly rejects Schwarz' Gotho-Nordic assumption: 'Es muß also bei der Unterscheidung von Gotisch und Nordisch bleiben; Goto-Nordisch ist eine Konstruktion, die der sprachgeschichtlichen Wirklichkeit nicht entspricht' (21). He concludes that the first split away from common Gmc. was the separation of the Goths (37). The remainder which he prefers to call with Kuhn 'late common Gmc.,' was divided into NGmc. and WGmc. by the feature of consonant doubling (Konsonantengemination), though he admits traces of it in NGmc., even in Go. Nevertheless, 'zu voller und sozusagen uneingeschränkter Auswirkung konnte die Erscheinung aber nur im Westgermanischen gelangen. Damit war die größere germanische Sprachgemeinschaft zerbrochen' (40).

2.2.8 Another thorough critique of the views of Maurer and Schwarz was provided by Adamus (1962) who bases his rejection of the Gotho-Nordic hypothesis on a careful step-by-step comparison of inflectional endings in nouns, adjectives, and pronouns. He lists 57 instances in which NGmc. and WGmc. show parallel forms whereas Go. shows forms that deviate (146–7). He concludes by suggesting that common Gmc. split first into Go. and 'NWGmc.' (158). It is not entirely clear whether his 'NWGmc.' is simply the remaining bloc of common Gmc., or whether he

conceives of it as an intermediate stage between PGmc. and NGmc. and WGmc.

2.2.9 Recently Rösel has pointed out that Frings, Maurer, and Schwarz ignored each other's work and that Kuhn was right in criticizing them for the overdependence on prehistory, tribal myths and archeology in finding answers to the Gmc. grouping. Rösel reaffirms the primacy of linguistic data and proposes to use the chronology of linguistic changes as his guiding principle, rather than the spatial relationships among the tribes (1961:vii). His basis throughout is the inflectional system of the attested Gmc. languages. He comes to the result that the first grouping was Go., Anglo-Saxon, Scandinavian on the one side, the remaining WGmc. languages on the other thus taking up the idea of a close OE-Nordic relationship proposed by Schmidt (1875:451). Rösel's classification is based largely on common choices from among inherited doublets (115). This first grouping ends with the departure of the Goths to the Vistula (200 B.C.), and OE is separated from NGmc. prior to the Gothic migration towards the Black Sea (200 A.D.). Rösel illustrates his views on the sequence of groupings by the following chart, where a plus sign stands for very close contact, a minus for close contact, more minus signs for looser contact, and a space for no further contact (120):

200 B.C.	Go.	+	Scand.	+	Engl.		Sax.	+	OHG	
100 B.C.	Go.	– –	Scand.	+	Engl.		Sax.	+	OHG	
0	Go.	– –	Scand.	– –	Engl.	– –	Sax.	+	OHG	– – Go.
200 A.D.	Go.		Scand.		Engl.	– –	Sax.	– –	OHG	
500 A.D.	Go.		Scand.		Engl.	–	Sax.	– – –	OHG	
800 A.D.			Scand.		Engl.	– – –	Sax.	–	OHG	

Common selection from inherited doublets does not appear to be sufficient evidence for the grouping of related languages. We also lack corroborating evidence for such a long settlement of the later Anglo-Saxons among the Scandinavians. In addition, Rösel refrains from indicating where the Frisians would fit in his scheme during the various periods (Zhirmunskij 1964:293).

2.2.10 We include a comment on the results of the lexicostatistical studies by Arndt (1959) although the basic assumption and formulae of glottochronology have been seriously challenged (Bergsland 1962). Arndt's study was undertaken with the express purpose of providing a critical correlation and juxtaposition with the non-statistic theories, the tripartite theory of genetic descent and the more modern approach of diffusion, contact and synthesis, represented by Maurer, Schwarz, and Zhirmunskij. It should be mentioned that Arndt shares our skepticism vis-à-vis lexicostatistics and ends his report requesting stringent cautions on the use of this method of dating.

Arndt's findings support our beliefs in respect to the absolute dates for the Gmc. period up to the beginning of our era, but indicate a lexical unity of NGmc. (excluding Go.) and SGmc. dialects until several centuries later. Since the SGmc. (= WGmc.) dialects separate from the Gmc. trunk at different times (later OHG in the 2nd century, later OFri. in the 9th century) glottochronology finds that there is no time for the development of a separate PWGmc. stage.

Arndt's findings of a long lexical unity of NGmc. and SGmc. support our assumption that lexical items are more easily subject to borrowing (or retention in closely related dialects) than phonological or grammatical features. His results also support the assumption of continued contact among the various Gmc. tribes, not a clean break or abrupt and lasting split. The only possible exception is provided by Go., but even there Arndt's figures show a great deal of lexical unity with OHG, though this may well be the result of later contacts.

3. Features used for classification

3.0 In the following we will adhere to the ordering principle applied by Lehmann (1966) in his brief and succinct treatment of the grouping and separation of the Gmc. languages. The main reason for this is that he stresses innovations shared by various groups, rather than simply listing the common features and then indicating the various possible groupings (Maurer ^{3}1952:63–86).

3.1 Innovations common to Scandinavian and Gothic

3.1.1 The most often cited innovation common to Go. and the Nordic languages is the development of a stop in geminate *j* and *w* clusters. This development is variously called Holtzmann's law, Gutturalisierung, Velarization, Verschärfung (van Coetsem 1949; Lindeman 1964). Examples for *-jj-:* Go. *twaddje*, ON *tueggia* vs. OHG *zweiio* 'of two'; for *-ww-:* Go. *triggwa*, ON *tryggva* vs. OHG *triuwa* 'troth'.

3.1.2 A second innovation is the development of an *-īn*-suffix in Go. and the Scandinavian languages in the pres. part. fem. contrasting with WGmc. *-jō-*. Examples: Go. *gibandei(n)*, ON *gifande* vs. OHG *gebantiu*, OE *giefendu*, *giefende* 'giving'.

3.1.3 A further peculiarity of this group is the development of a productive inchoative verb class marked by a *-na*-suffix in the pres., a *-nō*-suffix in the past. Examples: Go. *waknan*, *waknōda*, ON *vakna*, *vaknaþa* 'awaken, awakened'. Zimmer (1876) lists 49 verbs of this type in Go.

3.1.4 This group selected the ending *-t* (continuing an IE perfect ending) for the 2 sg. pret. indic., while the WGmc. dialects had an ending *-i* (continuing either an IE aorist or opt. ending) for this form, with the exception of the preterit-presents. Examples: Go. *graipt*, ON *greipt* vs. OHG *grifi*, OE *gripi*, OS *gripi* 'you gripped'. (Meillet 1917:143–6; but cf. Rosenfeld 1956:378 and Makaev 1965:23.)

3.1.5 In respect to the distribution of the athematic verbs (contract verbs) illustrated by OHG *gān* 'go', *stān* 'stand', *tuon* 'do' it is difficult to decide whether the northern group innovated by expanding them (Zhirmunskij 1964:73–4) or whether the western group innovated by contracting these forms (Lehmann 1966:17). At any rate, contracted forms are lacking in Go. and are significantly fewer in the Scandinavian languages (Antonsen 1967b:19).

3.1.6 In the interrogative pronouns of the type PGmc. *xwa-*, *xwe-*, Go. and the Scandinavian languages have derivatives of the *-j-* type. Examples: Go. *hvarjis*, ON *hverr* 'who?'.

A more complete listing of Gotho-Nordic parallels is provided by Schwarz (1951:144–6) and Zhirmunskij (1963).

3.2 Common innovations in the North Germanic and West Germanic dialects

A fair number of common innovations indicate a close and long-lasting relationship between Nordic and WGmc. Some of these innovations affect a large number of lexical units.

3.2.1 The most frequently cited parallelism is the change of PGmc. /z/ to /r/, the so-called rhotacism. Examples: Go. *dius* (gen. *diuzis*) vs. OS *dier*, OFri. *diar*, OE *dēor*, OHG *tior*, ON *dȳr* 'wild animal, deer'. It is possible, however, that the early attestation of the Go. forms is responsible for the fact that we find no rhotacism in that language, though Crimean Go. *schuos* (= schnos) retains Gmc. /z/ (Krause 1968:24).

3.2.2 A second shared innovation is the marking of almost all class-seven strong preterits by /ē²/, in contrast with reduplication in Go., e.g. ON *hēt*, OE *hēt*, OS *hēt*, OFri. *hīt*, OHG *hiaz* vs. Go. *haihait*. For the development of /ē²/ and reduplication see van Coetsem (1956:47–74). In the present context we merely stress the uniformity of development of Scandinavian and WGmc. as against Go.

3.2.3 A third development is the lowering of /ē¹/ to /ā/ in Nordic and WGmc., as in ON *lāta*, OHG *lāzzan* vs. Go. *lētan* 'let'. This development is not uniform throughout WGmc. as attested by OFri. *lēta* and Anglian *forlētes*. A key word here is Lat. *(via) strāta* which was apparently borrowed quite early (5th century) into much of Gmc. It appears in OHG as

strāz(z)a, in OS and OLFra. as *strāta*, in West Saxon as *strǣt*, and in Anglian and OFri. as *strēt(e)*. It would seem that the only likely explanation is that the late Lat. *ā* more or less matched a vowel in the WGmc. languages which must also have been more or less *ā*. This was then fronted to *ǣ* in West Saxon, and further raised to *ē* in Anglian and Fri. For a different explanation of *ē* in Anglian, Fri., and Go., see Bennett (1950).

3.2.4 A very far-reaching parallel development in Nordic and WGmc. concerns the laws of final syllables though the time differential in attestation must be kept in mind: the weakening of posttonic vowels is a general Gmc. development, the result of the accent shift. Nevertheless, the many identical realizations of this innovation in NGmc. and WGmc. which were compiled by Adamus (1962) support the assumption of a prolonged NWGmc. unity.

3.2.5 A grammatical isogloss is privided by the 3 sg. pres. of the verb 'be'. Unlike Go. *ist*, OHG *ist*, this form lacks final *-t* in ON, OE, OFri., and OS–possibly by analogy with the endingless preterit-presents. The assumption of an anology with the preterit-presents is strengthened by the 2 sg. which came to end in *-t* like the corresponding form of the preterit-presents (OE *scealt*, *const*): ON *est*, OS *bist*, OE *bist*. Whatever the causes, the occurrence of a 3 sg. form without *-t* in the three coastal dialects of WGmc. and in Scandinavian gives further evidence of interrelationships between these dialects, but note that Krause (1966:137) provides evidence that *ist* occurs in Ru. of the 4th century. This would indicate that *-t* was simply lost in later Scandinavian and the coastal dialects of WGmc.

3.2.6 WGmc. and NGmc. selected the suffixes *-dōm* and *-skapi* from among the new abstract noun suffixes, whereas in Go. these stems functioned as nouns only. Examples: Go. *dōms* (ON *dōmr*, OE *dōm*, OHG *tuom*) vs. OE *wīsdōm*, ON *vīs-dōmr*, OHG *wīstuom* 'wisdom'. Similarly: Go. *ga-skafts* (OE *ge-sceaft*, OHG *giscaft*) vs. OS *friundskepi*, OE *frēondscipi*, OHG *friunt-scaf(t)* 'friendship', ON *blīð-scapr* 'joy, bliss'.

3.2.7 Another important shared innovation is the production of a new demonstrative pronoun by the addition of *-se* to the demonstrative stem. Examples: ON *þesse*, OE *þes*, OHG *dese* 'this' (Adamus 1962:153).

3.2.8 Although shared lexical items generally add little weight to proposed dialectal alignments because they are borrowed freely among related languages, the large number of words shared by Scandinavian and coastal WGmc. (as against Go.) lend credence to the assumption that these dialects remained in close contact until the 5th century A.D. (Lehmann 1966:18).

3.3 Common innovations in the West Germanic dialects

Aside from the characteristics shared with Scandinavian the WGmc. group shows a number of common features which have led many scholars (as we have seen) to insist on the reconstruction of an intermediate PWGmc. stage. We will come back to the question as to the necessity of such an intermediate stage; here we will simply list the various features common only to WGmc.

3.3.1 The best known such innovation is the WGmc. consonant doubling (Konsonantengemination). Before sonants, especially /j/, nearly all consonants were subject to this development. Example: Go. *bidjan*, ON *bidia* vs. OE *biddan*, OFri. *bidda*, OS *biddian*, OHG *bittan* 'bid, ask'. Ever since Kluge (1901:426–7) it has been assumed that the doubling was a relatively late phenomenon (3rd to 5th centuries) since Lat. loans of this period participated in it, e.g. Lat. *puteus* 'well': OE *pytt*, OHG *phuzzi* (Lehmann 1966:20). The participation of Lat. loans does not force us, however, to assume such a late date, because loans will invariably have to conform to the phonotactic situation prevailing in the borrowing language. When the consonants had doubled after short vowels before [j] only two phonotactic types were possible [C$\breve{V}$Cj-] or [CVCCj-] (Martinet ²1964:144–5). It follows that loan words had to conform to this pattern no matter when they were borrowed, just as long as these two types were the only ones possible. It should be remembered, however, that in OHG consonant doubling took place after long vowels and diphthongs as well, a fact which weakens Martinet's phonotactic argument. Maurer (²1952:69) claims that the consonant doubling is not specifically WGmc. but occurred in the Scandinavian languages as well, e.g. Go. *hugjan*, ON *hyggja*. Zhirmunskij (1965:30) points out that the Scandinavian development is restricted to the 'articulatory peculiarities of the back vowels,' but OI *vekkia* (beside *vekia*) from **wakjanan* and *leggia* from **lagjanan* indicate that in OI *k* and *g* were doubled after short vowel and before *j*. Still. the WGmc. development is far more general.

3.3.2 Another change is the loss of the labial element in the PGmc. clusters /ngw/, e.g. Go. *siggqan*, ON *søkkva* vs. OS, OE, OHG *sinkan*.

3.3.3 The voiced spirant, PGmc. [ð], became a stop in all environments in WGmc., cf. Go. *fadar*, ON *faðer* vs. OE *fæder*, OS *fadar*, OHG *fater* or Go. *biudan* (pret. *bauþ*), ON *bjōða*, but OE *bēodan*, OHG *biotan*.

3.3.4 Another distinction shared by the WGmc. dialects is the loss of final PGmc. /-z/; cf. Go. *dags*, ON *dagr*, but OE *dæg*, OHG *tag*, OS *dag*. Krause (1953:41) uses this particular isogloss to reaffirm the old tripartite division. It does not appear advisable to base a classification of this magnitude on the presence or absence of a single feature, the more so as the

loss of this final spirant in WGmc. seems to have occurred relatively late. It should also be mentioned that the Ostro-Gothic names of the 6th century (antedating the WGmc. evidence by two centuries) indicate the same loss of final *-s*, e.g. *Ufitahari*, *Gudilub* (Wrede 1890:176–82; also Zhirmunskij 1962:136).

3.3.5 On the morphological level a further innovation needs to be mentioned: the production of a declinable inf. (gerund). Examples: OHG *nemannes* (gen.), *zinemanne* (dat.); OE *to nimenne (-anne, -onne)* (dat.); OFri. *farande;* OS *te nemanne*. Zhirmunskij (1965:30–34) and Hammerich (1955) list further innovations, the former particularly on the morphological and syntactic levels. The sum of these features allows us to posit a WGmc. linguistic community as a grouping which includes the dialects referred to as Ingveonic (North Sea Gmc.), Istveonic (Weser-Rhine Gmc.), and Erminonic (Elbe Gmc.).

3.4 Innovations common to Old English and Old Frisian

OE and OFri. share a considerable number of innovations, particularly in the vowel system. Onomastic evidence strongly supports the assumption that early OS shared many of these features up to the time of its 'Franconization' (Sjölin 1969:5, cf. 3.6.1 and 3.6.2).

3.4.1 PGmc. /a/ was fronted to /æ/ in closed syllables, unless the following consonant was a nasal. Example: OHG *stab*, OS *staf* (also *stef*), but OE (West Saxon) *stæf*, OE (Kentish) *stef*, OFri. *stef* (Kuhn 1955:32, DeCamp 1958:233).

3.4.2 PGmc. *a*, $\bar{e}^1$, *i*, *u* were modified before nasals. Examples: OHG *man*, OS *man*, but OE *man*, *mon*, OFri. *mon* 'man'; OHG *neman*, but OE *niman*, OFri. *nima (nema)* 'take'; OHG *coman (queman)*, but OE *cuman*, OFri. *cuma* 'come'. On PGmc. *a*, *ē* before nasal plus voiceless spirant, see the following section.

3.4.3 A striking common innovation is the loss of nasal before dento-alveolar and labial voiceless spirants with a corresponding lengthening of the preceding vowel (in respect to PGmc. *an* this happened under weak stress as well). Examples:

OHG *gans*, but OE *gōs*, OFri. *gōs*, also OS *gās* 'goose'
OHG *uns*, but OE *ūs*, OFri. *us*, also OS *ūs* 'us'
OHG *finf*, but OE *fīf*, OFri. *fīf*, also OS *fīf* 'five'
OHG *sind*, but OE *sīð*, OFri. *sīth*, also OS *sīð* 'trip'.

Again, this was not a purely North Sea phenomenon: OI also shows some examples of loss of nasal voiceless spirant. Cf. *fīfl* 'giant' from **fimflan*, *mīl* '(horse's) bit' from **minþl-*.

3.4.4 A further common development is the metathesis of /r/, in the context of C+*r*+V (Schönfeld–van Loey ⁷1964:70): OHG *brinnan*, but OE *beornan*, OFri. *barna*, *berna* 'burn'. (For more correspondences see Steller 1928:4–5; Sjölin 1969:5–6.)

3.4.5 As with the loss of nasal (see 3.4.3) the following morphological change is common to all Ingveonic languages, i.e. including OS. In the pl. pres. ind. all three persons have a uniform ending *-aþ:* in OE *-að*, OFri. *-ath (-at, -eth, -et)*, OS *-að (-ad, -at)*, *-oð* (rarely *-and, -ond*). Examples: OHG *binten, bintet, bintant*, but OE *bindað*, OFri. *bindath*, OS *bindað* 'bind'. The origin of the form is the 3 pl., PGmc. *-anþ*, with the loss of *n* before voiceless spirant plus the subsequent reduction in vowel length under weak stress. Such forms are characteristic of contemporary Low Ger. dialects, and also of Alemannic dialects, a fact which persuaded Wrede (1924) to posit the reach of Ingveonic from England to Switzerland (see above 2.2.3).

3.4.6 One of the best-known 'Ingveonisms' are the *z*-less dat. pronouns in OE, OFri., OS, and OLFra. (see also 3.3.4). The monosyllabic personal, deictic, and interrogative pronouns ending in PGmc. *-z* (Go. *-s*, Ru. *-R*, ON *-r*, OHG *-r*) lost this consonant in postvocalic position. Examples:

(a) OHG *mir*, vs. OE *mē, me;* OFri. *mī, mi;* OS *mī, mi, me;* OLFra. *mī, mi*. OHG *wir* vs. OE *wē, we;* OFri. *wī, wi;* OS *wī, wi, we;* OLFra. *uuī, uui, uuir*.

(b) OHG *(h)wer* vs. OE *hwā, hwa;* OFri. *(h)wā, (h)wa;* OS *hwē, hwie;* OLFra. *uue, uuie*.

3.4.7 Scandinavian and OHG as well as Go. distinguish the personal pronouns of the 1st and 2nd person in the dat. and acc. by the reflex of PGmc. *-z* for the dat. and of PGmc. *-k* for the acc. Examples: Go. *mis, mik; þus, þuk;* ON *mēr, mik; þēr, þik;* OHG *mir, mih; dir, dih*. The OHG *-ih* ending was extended also into the pl.: dat. *uns, iu*, acc. *unsih, iuwih* (cf. NHG *euch*). OE and OFri. on the other hand exhibit the opposite tendency, viz. towards less differentiation. OFri. shows no differentiation between dat. and acc. forms in either sg. or pl. OFri. sg. oblique: *mī, thī;* pl. oblique: *us, iu*. The common forms in OE are *mē, þē* for both dat. and acc., in Anglian we find *mec* and *þec (þæc)* used for both dat. and acc. This ending spread into the pl. as well, generally in the acc., but in rare instances also for the dat.: *ūsic, ūsig, īowih;* but in both cases they were in competition with the short forms *ūs, ēow*. OS shows in addition to the regular short forms for both cases, *mī, thī*, the rare acc. forms *mik, thik*, clearly under High Ger. influence. For a full discussion of pronominal developments, see Rosenfeld 1955.

3.4.8 The negative *ne* was contracted with following verb forms, most commonly with auxiliaries and other high frequency verbs, e.g. OFri.

wita 'know': *nēt; hefja* 'have': *neth; willa* 'wish': *neli; wesa* 'be': *nis; āga* 'have': *nāchte*. This feature was present, of course, in OHG and OS even Go. *nist* as well, but to a significantly smaller extent (Levin 1960:76–8).

3.5 Common features in Gothic and Old High German

In the article which was discussed above (2.2.3) Wrede proposed the close linkage between OHG and Go., and he based this proposal mainly on the following evidence.

3.5.1 The Go. dual forms in the pronouns, e.g. *jut**, *igqis* have a parallel in the Bavarian forms *es*, *enk* though the latter are now used with a plural meaning. As pointed out by Springer (1941:14) this parallel is not unique: remants of dual pronouns are found in ON and Anglo-Frisian as well; in parts of Westphalia they are used to the present day.

3.5.2 The third person pronoun in Go. is *is*, *ina*, in OHG *er*, *inan* in contrast to the PGmc. *z*-less forms of OE *hē*, *hine*. Note also this important difference in the forms: reflexes of PIE *iz* in Go. and OHG, but reflexes of PIE *k-* in Nordic, OE, OFri., OS, and northern Ger.

3.5.3 Further evidence for Wrede consisted of the retention of nasals before voiceless spirants and the distinctions in the pl. verb forms. Both of these features are clearly retentions, and thus poor evidence: the innovations took place in the other dialects. The common feature in the 3 sg. and the 2 and 3 pl. pres. of verbs in Go. and OHG (these two languages show reflexes of Gmc. voiced spirants) again do not offer cogent reasons for close relationships between Go. and OHG (Lehmann 1966: 21; Karstien 1939:16–7).

On the other hand the parallels in vocabulary suggest contacts between Go. and some OHG speakers at a late date, after Christianity had been introduced. Bavarian /bferda/ < Old Bavarian *pherinctac* 'Friday' like Go. *paraskaiwe* is a loan from Gk.; so also in South Ger. *Samstag* < OHG *sambaztag*, Go. *sabbato daga* 'Saturday'. The usual verb for 'baptize' is *fulwian* in OE, but OHG *touffan*, Go. *daupjan*. Other lexical parallels may be due either to such contacts or to parallel selections from PGmc. doublets, e.g. Go. *hindar*, OHG *hintar* vs. OS *aftar*, OE *bi-æftan* 'after'.

These agreements in vocabulary suggest influence of Go. on southern OHG in the 5th and 6th centuries, after the introduction of Christianity. They do not present evidence for an early interrelationship between EGmc. and SGmc. A different explanation is suggested by Reiffenstein (1958).

3.6 Further interrelationships

3.6.1 The best illustration for the complex nature of continued mutual influence after divergent dialects had been established is the area of northern Germany. As we found in various preceding sections (3.4.3, 3.4.5, 3.4.6, 3.4.7) the speakers of OS originally shared many characteristics with OE, OFri., and OLFra. Gradually, however, this area fell under the cultural influence of the south, taking over more and more innovations from Inland Gmc., specifically the northern dialects of OHG. The literary documents of OS times, *Heliand* and *Genesis*, already show a large number of southern borrowings, whereas non-literary sources preserve the North Sea traditions much longer. Located between two focal areas, the speech of northern Germany was modified by both successively, whenever the focal area in question was culturally or politically dominant.

3.6.2 A similar succession of influences is reflected in the development of OLFra. It shares some of the basic WGmc. features listed above (consonant doubling, tendency toward umlaut, apocope of PGmc. /z/ in the nom., special 2 sg. pret. of strong verbs), with OS it shares the forms of the personal pronouns and the verb froms **hebbjan* and **seggjan* vs. OHG *habēn*, *sagēn*. Yet, it distinguishes separate pl. endings. The changing influences from the west and the south are too complicated to be mentioned here in detail (Schönfeld-van Loey ⁷1964: xxvi–xxix); for our purposes it suffices to state that OLFra. is another example of the difficulty of determining the linguistic situation in the late Gmc. period of an area which was subsequently exposed to conflicting cultural alignments, each of which left traces in the language (cf. 3.4.6 and van Helten 1902).

The scholarly contributions of modern dialect geography have enabled us to gain a clearer understanding of the situation as it must have prevailed in the late Gmc. period. Migrations, such as that of Gmc. speakers to Britain or Iceland, or to the east and southeast beyond the Elbe, have resulted in the development of distinct dialects. In almost all instances, however, such migrations did not result in the complete severance of contacts and to the extent that intercommunication was preserved, post-migration innovations were transmitted from dialect to dialect. In the late Gmc. period relatively compact dialect groupings arose, such as OHG-composed of Alemannic, Bavarian, Langobardic, MFra.–or OE-composed of West Saxon, Kentish, Anglian. Of even greater importance for our understanding of the complexities of the linguistic situation are the looser groupings, such as that made up of OE and OFri., and for various periods of OS and OLFra. When these areas became so large that close contacts outside them were infrequent, and also when geographic distances

as well as political and social conditions hindered or prevented intercommunication, distinct subdialects came into being.

3.6.3 So far we have mentioned only the two mechanisms which account for the vast majority of the similarities between the various dialects: genetic relationship and contactual influence. Aside from purely accidental similarities (generic similarity), there is a third feature of linguistic change which may account for some parallelisms: similar, but independent, developments in languages of similar phonological and grammatical structure. This phenomenon has variously been called 'drift' or 'innere Gesetzmäßigkeiten.' It stands to reason that a great deal of caution is called for in dealing with such phenomena; they require even more delicate manipulation than do those such as umlaut, which reflect allophonic alignments of an earlier period.

This question was first dealt with in some detail by Meillet (1917:2–4). It was elaborated by Zhirmunskij (1940:38, 46) where he states the then radical view that an identical or very similar linguistic feature in a group of languages does not necessarily have to be the result of common inheritance. The example used most frequently in this connection is the diphthongization of the long high vowels in NHG, MnE, and Netherlandic, a process which took place between the 12th and 16th centuries.

To be sure, such inherent tendencies in related languages need not bring about parallel, but independent developments; what they certainly do, however, is facilitate the acceptance of changes in neighboring dialects.

We may thus attribute to 'drift' the diphthongization of the long high vowels and the general tendency towards the monophthongization of the PGmc. diphthongs /ai/ and /au/ which took place in various Gmc. languages at different times and brought about differing results. The general tendency, however, was the same throughout according to Zhirmunskij (1965:12). A further instance of the influence of an 'inherent tendency' may be the loss of nasal before voiceless spirant with frequent compensatory lengthening of the preceding vowel which we described in Ingveonic (3.4.3). The same change took place centuries later in much of Alemannic, e.g. Alemannic *fīf* or *faif* 'five'; *gās*, *gōs*, *gaus* 'goose'; *ūs*, *us* 'us'. Wrede used this parallelism to support his suggestion of a coherent Ingveonic area from the North Sea to Switzerland. We now accept the fact that similar independent developments are fairly common, and are not distinctive enough to force upon us the assumption of a mutual influence (Lehmann 1966:24). Since linguistic changes are not unique, we no longer have to assume close interrelationships or an earlier proto-language whenever parallel developments are attested in two dialects.

(For more complete and detailed listings of materials on which various

classifications have been based, cf. Maurer ³1952:67–86; Schwarz 1951: 47–120 and 188–200; Zhirmunskij 1964:64–81, 111–20 and 141–70; Adamus 1962:126–47.)

4. Conclusion

4.1 It has become obvious that the dual assumptions of a rectilinear Stammbaum-scheme and a clean tripartite split have been unable to cope with the existence of mutually exclusive isoglosses, e.g. the Verschärfung connecting NGmc. and EGmc., the rhotacism connecting NGmc. and WGmc., the 3 sg. masc. pronoun (Go. *is, ina;* OHG *er, inan*) connecting EGmc. and WGmc. The abstract visualization of a uniform proto-language which neatly divided into three daughter languages without further contact and mutual influences had to be abandoned. Leaving aside Maurer's view of a special relationship between Nordic and Alemannic, present scholarship can be summarized under four headings:

(1) Scholars adhering to the traditional tripartite division: Examples: Krause 1953; ²1956; Mossé ²1956.

(2) Scholars who assume a first division into North(east) and South (west). Examples: Karsten 1928; Schwarz 1951 and 1956; Rosenfeld 1956; Zhirmunskij 1964 and 1965; Lehmann 1966. Rösel (1962) belongs to this group although he includes the precursor of OE with North(east) Gmc.

(3) Scholars who assume a first division into EGmc. and NWGmc. Examples: Kuhn 1955 and 1965; Adamus 1962; Antonsen 1962; Makaev 1965.

(4) Scholars who find that our present knowledge and methods do not suffice to solve the problems of the Gmc. Ausgliederung. Examples: van Coetsem 1970; Marchand 1970.

4.2 Since we do not yet have a methodology which allows us to weigh a given linguistic criterion we are left with the unsatisfactory procedures of numerical taxonomy. It is clear that the isoglosses which connect NGmc. and WGmc. affect many more lexical items than those that connect NGmc. und EGmc. The morphological correspondences adduced by Adamus in support of a primary split into NWGmc. vs. Go. far outnumber the grammatical features which Schwarz can muster for his Gotho-Nordic. Also, the conservatism of the Ru. inscriptions–for whatever reason–does not allow us to single out specifically NGmc. or WGmc. features prior to the fourth century, a fact which supports a North-West unity long after the departure of the Goths (2nd century A.D), at least for the special language of the Ru. inscriptions. Nevertheless, the isoglosses connecting Go. with the Scandinavian languages cannot be ignored.

Since it has been established that the Goths originated in Scandinavia (Wagner 1967:214) the most reasonable assumption is that the innovations were shared by Goths and the immediately adjacent Gmc. speakers and that these innovations spread throughout the greater part of the Scandinavian area only after the Goths had left. This possibility was suggested by Schwarz himself (1951:149, also 80, 90, 93, 106, 118, 123, 129) and fully endorsed by Kuhn (1952–3:47; 1955:10, 16) although the latter suggests that Eastern Scandinavian is thus Nordic on an EGmc. substratum (1952–3:48), an assumption which is unnecessary and unprovable.

4.3 Since the application of the methods of modern dialectology and linguistic geography to the problems of grouping the early Gmc. languages has proved that the vast majority of the languages for which we find evidence are dialect groupings or the result of dialect groupings, there is no reason for reconstructing new proto-languages (Lehmann 1966:17). The literature on this question shows that the rigid Stammbaum-scheme is in danger of being replaced by equally rigid though newly labelled 'independent' Gmc. languages, such as PWGmc. (Brugmann 1902:27), North Sea Gmc. (Schwarz 1951:269) or even Mediterranean Gmc. (Kuhn 1955:45). Such rigidity–regardless of terminology–will only serve to revive the outmoded Stammbaum-thinking: 'Es ist eine Ironie, daß bisher alle Angriffe auf das alte Einteilungsschema nur höhere, dichter belaubte Stammbäume hervorgebracht haben.' (Philippson 1954:30).

4.4 We can now summarize the possible grouping and separation of the Gmc. languages leaning heavily on a similar summary provided by Zhirmunskij (1965:34–6), the scholar who has dealt with our topic most frequently and extensively.

(1) The first post-PGmc. developments for which we have solid linguistic evidence are the innovations shared by Go. and NGmc. It seems likely that these innovations (see 3.1) were shared at this time (2nd century B.C. to the beginning of our era) only by a relatively small part of the NGmc. area, and spread throughout most of Scandinavia only after the departure of the Goths. All conjectures as to the extent that these innovations were shared by all of the languages which have also been called EGmc. (Cimbri, Teutons, Vandals, Burgundians, etc.) should be avoided since the linguistic evidence is insufficient.

(2) Separate development of EGmc. on the shores of the Baltic Sea (2nd century B.C.–2nd century A.D.). Most probably some contact with the Gmc. tribes settled along the Elbe (Elbe Gmc. = Erminonic group) but linguistic evidence is weak.

(3) Migration of the Goths to the Black Sea steppes (2nd and 3rd centuries). (The Bible was translated in the 4th century, our written versions date from the 6th century.)

(4) Continued common development of the remaining Gmc. tribes with many shared innovations (see 3.2) between the 1st and 5th centuries. The Ru. inscriptions up to the 5th century do not exhibit features which would allow us to classify them as Scandinavian to the exclusion of WGmc., though this fact may be attributable to the koine-character of Ru. (Makaev 1965:20, 44, 49; Kuhn 1955:45; but Antonsen 1967b:20). Since NGmc. and WGmc. cannot be established as clearly separate dialect areas for the 1st century A.D., we cannot support the assumption of a Gotho-Nordic group or of a split between Go. and Nordic. Instead we must assume that the Goths left a largely undifferentiated linguistic area when they emigrated to the southeast.

(5) Although the age of the WGmc. innovations is unclear (Kuhn 1955:45), the early beginnings of an internal division within WGmc. (variously called Istveonic, Ingveonic, Erminonic or North Sea Gmc., Rhine-Weser Gmc., Elbe Gmc.) may be assumed for the 2nd century, though the 'Hochsprache' of the Ru. inscriptions remained unchanged much longer (3.3.1, 4.2).

(6) Most recent research dates the crucial separation developments as late as the 4th and 5th centuries (Makaev 1965:43; Kuhn 1955:46) in connection with the separation and stabilization of the Ingveonic linguistic group, and as a result of the preceding and ongoing tribal migrations (Völkerwanderung). Although the 'Ingveonic question' remains unsolved (Makaev 1965:46; van Coetsem 1970:33) it seems that the migration of the Anglo-Saxons to Britain about the middle of the 5th century and the individualization of their language as OE contributed to the creation of a temporary linguistic entity (Ingveonic, North Sea Gmc.). Many of their innovations were transmitted to the Frisians and continental Saxons, some also to Low Franconian. The WGmc. unity–if it ever existed–broke up very quickly.

(7) Southwest migration of the remaining, continental Saxons from the North Sea towards the Weser-Rhine region and linguistic interaction with the remainder of the Istveonic tribes (probably 4th and 5th centuries).

(8) Migration of the Erminonic tribes from the lower and middle Elbe towards Southern Germany (beginning with the 1st century). Occupation of South Germany by Alemannic and Bavarian tribes (3rd to 5th century). South Ger. consonant shift (6th century, possibly somewhat earlier) and its spread into the area of Central Germany (Franconian, Hessian, Thuringian: 7th to 15th century). Simultaneous displacement of Central Ger. 'Ingveonisms' under Upper Ger. influence.

(9) Western expansion of the Franco-Istveonic tribes into the Romanized north of Gaul and the formation of a bilingual state under the Merovingians (end of 5th century). Political unification of the continental

WGmc. tribes under the Merovingians and Carolingians (5th to 9th century): Franconians (Istveonic), Alemannians and Bavarians (Erminonic), Hessians and Thuringians, later the Saxons (Ingveonic) as a prerequisite to the formation of a Ger. people and its language OHG (written documents from the middle of the 8th century). Mutual influencing of the tribal dialects within OHG under the regulating influence of Fra. Fra. influence upon Low Saxon, finally resulting in its transformation into the Low Ger. dialects of the Ger. language (9th to 16th century).

(10) Separation of Scandinavian from Continental Gmc. (from the 5th century). Split into an Eastern and Western group (from the 7th century). Colonization of Jutland by Danes (from eastern Scandinavia, 5th and 6th centuries), and of Iceland by Norwegians (from western Scandinavia, 8th and 9th centuries). Individualization of the Scandinavian languages (documents in Lat. script from the 12th and 13th centuries).

4.5 Many uncertainties remain despite almost two centuries of diligent research on the grouping and separation of the Gmc. languages. Aside from the early departure of the Goths in the east and the long uniformity of the Ru. language in the north and west, few of the assumptions have remained unchallenged. It may well be that we can never reach a scholarly consensus in regard to the original linguistic status of the dialects of the central Gmc. area, their various divergences and convergences, or their relationships with the northern and eastern areas (van Coetsem 1970:36; Marchand 1970:121).

Prosodic Features in Proto-Germanic

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Outline

1. Stress
   1.1 The Indo-European and Germanic accents 100
   1.2 The relative chronology of the Germanic accent shift . . . 100
   1.3 Evidence for stress 102
   1.4 Degrees of stress 103
   1.5 Primary word stress 103
   1.6 Secondary word stress 104
   1.7 Weak word stress 105
   1.8 Primary syntactic stress 107
   1.9 Secondary phrase stress 107
   1.10 Weak phrase stress 109
   1.11 Summary: the Proto-Germanic stress patterns 111
2. Juncture
   2.1 Evidence for juncture 112
   2.2 Internal open juncture 112
   2.3 Internal close juncture 113
   2.4 External open juncture 113
   2.5 Summary: Proto-Germanic juncture 114
3. Length and pitch
   3.1 Vowel length and the circumflex-vowel theory 115
   3.2 The assumed Proto-Germanic long stops 115
   3.3 Pitch 116

1. Stress

1.1 The Indo-European and Germanic accents

The Gmc. languages reflect three major alterations of the parent IE accentual system:

(a) The parent IE accent was based primarily on pitch. In itself, an alternation of high and low tones produces neither shortening nor loss of sounds. In contrast, the Gmc. accent (like that of Celtic and early Italic) was based chiefly on stress. Though Gmc. syllables bearing primary or secondary stress underwent little more than changes in quality, syllables that received weak stress became subject to shortening of sounds, loss of sounds, or both, as in IE **mēnōt* > Go. *mēna*, OHG *māno*, OE *mōna* 'moon'.

(b) The IE pitch accent was not confined to any given syllable. In some words the primary accent occurred on a root syllable, in others on an affix or ending, and in still others the accentuation varied between one paradigmatic form and another. In Gmc. (as in Celtic and early Italic), on the other hand, primary stress was fixed on word-initial syllables, regardless of their earlier accentuation; contrast early OE *fæder* (all cases) with Gk. nom. *patḗr* 'father', voc. *páter*, acc. *patéra*, gen. *patrós*, dat. (historically loc.) *patéri*. Clitics, not being word-bound but phrase-bound, did not receive primary stress: IE **is* > PGmc. **iz* (/z/ by Verner's law) > early OHG *ir* 'he'.

(c) The IE movable pitch accent was generally nondistinctive, as in **ápo* beside **apó* (= Go. *af*), whereas the Gmc. fixed stress provided a basis for contrast, as in Go. acc. *áflēt* 'forgiveness' beside imper. *àflēt* 'forgive thou'.

1.2 The relative chronology of the Germanic accent shift

1.2.1 The conventional opinion

It is generally assumed that the Gmc. accent was still movable until after the voicing that resulted from the operation of Verner's law (e.g., see Streitberg 1896: § 142; Prokosch 1939:62; Fourquet 1948:42; Krahe 1963: § 62). According to this interpretation, the PGmc. voiceless fricatives /f þ x s/ became voiced under the movable accent, provided (a) that they did not occur in word-initial position, (b) that the nearest preceding vowel or other syllabic did not bear primary accent, and (c) that these consonants were not members of voiceless clusters. The posited Gmc. period of movable accent is variously estimated to have lasted between several centuries and at least a millenium.

1.2.2 Arguments for and against the conventional opinion

The interpretation cited above is based on two assumptions: (a) PGmc. /þ ð g z/, when arising through the operation of Verner's law, could not have developed respectively from /f þ x s/ if the primary accent had been fixed; (b) therefore, the earlier PGmc. accent was still movable.

If this is true, two pre-Gmc. forms like **kmtóm*[1] and **kom-mójnis–* each with primary accent on the second syllable– must have retained their accentuation until after the operation of Verner's law. Yet /k/ in these forms shows two different shifts: to /x/ in **kmtóm* > Go. *hund* 'hundred' but to /g/ in **kom-mójnis* > Go. *gamáins* 'common'; on IE **kom-* > Go. *ga-* see Pokorny 1959:613. Unless the accentuation of one parent form was changed before the shift took place, /k/ would hardly produce /x/ in one instance but /g/ in the other. It is of course possible to conclude with Feist (1939:173) that IE **kom-* could not become PGmc. **ga(n)-* > Go. *ga-* because this development does not agree with the conventional formulation of Verner's law, but it is also possible that the formulation itself may be at fault.

1.2.3 Suggested formulation

If word-initial primary stress was already fixed in PGmc. before /p t k/ had begun to shift, as I would suggest, all the conditioning factors of the shift, including the operation of Verner's law, had been predetermined, and there was no early Gmc. period of movable primary accent.

(a) Primary accent, whether based chiefly on pitch or chiefly on stress, involves an increased expenditure of effort, as lesser degrees of accent involve reduced effort.

(b) PGmc. /f þ x s/ had two sets of allophones, respectively [f þ x s] and [þ ð g z], all of which were voiceless. See footnote 1, (b).

[f þ x s] were formed with increased effort (i.e. fortis). They occurred word-initially under the fixed word-initial primary stress, e.g. [x] in **xánēn* 'cock' < IE **kanḗn*, and medially or finally if the nearest preceding parent vowel or other syllabic had already borne primary accent, e.g. [þ] in **þrṓþēr* 'brother' < IE **bhrấtēr*.

Conversely, [þ ð g z] were formed with reduced effort (i.e., lenis). They occurred in preaccentual (proclitic) syllables, e.g. **tuz-* < IE

[1] The following transcriptions require separate attention: (a) inasmuch as posited IE palatal and velar *k* are mutually indistinguishable in Germanic, they are represented here by single symbol /k/; (b) the allophonic symbols [þ ð g z] are used in § 1.2.3 to represent *voiceless* lenis fricatives because the IPA modifier indicating voicelessness (a small subscript ˚) is not available in suitable type faces.

**dus-* (Gk. *dus-* 'ill-, mis-'), and medially or finally if the nearest preceding parent vowel or other syllabic had lacked primary accent, e.g. [ð] in **fáðēr* 'father' < IE **pətḗr*. As [f] and [ð] in **fáðēr* illustrate, the effect of word-initial primary stress was always confined to word-initial position.

(c) At this stage of development, [f ƀ] were still allophones of one phoneme, and the same was true of [þ ð], [x g], and [s z]. Within the PGmc. period, however, lenis voiceless [ƀ ð g z] merged respectively with voiced /ƀ ð g z/ (< IE *bh dh*, etc.) and so came to contrast with their former co-allophones [f þ x s], which thus became separate phonemes. But voiceless clusters always remained voiceless, e.g. [xt] in PGmc. **áxtōw* 'eight' < IE **oktṓw*. If word-initial primary stress had not been fixed before the shift, the outcome would have been decidedly different: Go. **bulls* for *fulls* 'full' < IE **pl̥nós*, **gana* for *hana* 'cock' < IE **kanḗn*, and so on.[2]

1.2.4 The fixation of stress and the concept of Proto-Germanic

PGmc. may be defined on the basis of phonetic, phonemic, morphologic, or prosodic features, or it may be assigned to a period of time. For the present purpose, it will be taken to represent 'that stage of Gmc. which was spoken between the time of the Gmc. accent shift [i.e., the fixation of word-initial primary stress] and the loss of /e a/ when final and weakly stressed' (Lehmann 1961:70).

1.3 Evidence for stress

1.3.1 Word stress

Stress within the individual word (namely word stress) has played a decisive role in Gmc. developments, so that its effects are widely discernible. Evidence bearing on the PGmc. distribution of word stress is provided (a) by certain features of Verner's law, (b) by many later stress-conditioned phonologic changes, (c) by the alliteration of Gmc. verse, (d) by both preliterate and historic losses of weakly stressed sounds and syllables, and (e) by the surviving stress patterns of native, nonderivative Gmc. words.

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[2] This interpretation of Verner's law represents a modification of the view expressed in Bennett 1968b and 1970; the present formulation accepts the widespread opinion that only one distinctive feature of a phoneme will change at a given time. Though I am solely responsible for the interpretation presented here, thanks are due to Frans van Coetsem and William G. Moulton for some especially helpful comments.

These sources of information, varied and widely separated as they are, are nevertheless in mutual agreement, one source confirming the testimony of another.

1.3.2 Syntactic stress

On the other hand, the relative degree of stress prominence that a speaker may give to a word or form within a phrase, clause, or sentence (that is, syntactic stress) is a much more variable factor that has produced fewer discernible results, though its phonologic effects on individual Gmc. words and on certain types of phrases are unmistakable.

1.4 Degrees of stress

Three degrees of stress are to be distinguished: primary, secondary, and weak. For the immediate purpose, the Gmc. forms cited below are marked as follows:

(a) Hyphens are used to separate immediate or ultimate constituents rather than syllables.

(b) Primary stress is denoted by ′, secondary stress by ˋ, weak stress being left unmarked: OE *fēower-fèald* 'fourfold', Go. *figgra-gùlþ* 'finger-ring'.

(c) As in some grammars, Go. *ai au* are marked on the second letter when derived from short vowels *(aí aú)* and on the first letter when derived from diphthongs *(ái áu)*, except that ˋ is used below instead of ′ when these sounds bore secondary stress: *ásilu-qaìrnus* 'donkey-quern, millstone', *áuga-daùrō* 'eye-door, window', *àna-aí-àuk* 'he added'.

1.5 Primary word stress

In Gmc., as in the neighboring Celtic and early Italic, primary word stress was fixed on initial syllables, excluding proclitics, which were phrase-bound. That this primary word stress remained fixed on initial syllables is shown by literally thousands of Gmc. alliterations, and the same initial stress is still familiar in native, nonderivative Gmc. words. In PGmc. it occurred on root syllables (**þéwðanaz* > OI *þjōðann*, Go. *þiudans*, OE *þēoden*, OS *thiodan* 'king'), on reduplicating syllables (3 sg. pret. ind. **xé-xàjte* > Go. *haí-hàit* 'he called'), and on prefixes, which–unlike proclitics–were word-bound (*ún-* in *ún-lyfigendes* 'of the dead man', alliterating with *eal* 'all' in Beowulf 744). The twofold development of PGmc. **un-* in NGmc., e.g. to OI *ō-* or *-ū*, depending respectively on its bearing primary or secondary stress, appears to have been a Scand. innovation.

1.6 Secondary word stress

The fixation of initial primary word stress, regardless of whether it fell on a root, a reduplicating syllable, or a prefix, was a mechanical process. In turn, it determined the distribution of secondary word stress.

1.6.1 Secondary word stress in compounds

Simple or complex forms bearing primary word stress adopted secondary stress when occurring in second immediate constituents of compounds, e.g. OE *bénc* 'bench' but *éalu-bènc* 'ale-bench', OHG *hûs* 'house' but *grábe-hȕs* 'grave-house, sepulcher', Go. *hairtō* 'heart' but *hráinja-hàirts* 'pure-hearted', *daúr* 'door' but *áuga-dàurō* 'eye-door, window', *gúlþ* 'gold' but *fíggra-gùlþ* 'finger-gold, ring'. Not bearing primary word stress, second immediate constituents of compounds do not alliterate in Gmc. verse. Conversely, that their root syllables bore no less than secondary stress is indicated by various phonologic developments in the early Gmc. languages. Thus Go. *ai aú* as in *hráinja-hairts* and *áuga-daurō* never occur in weakly stressed syllables of native words, and OE *ēa* < PGmc. /aw/, as in *drēam-lēas* 'joyless', appears only in syllables bearing primary or secondary stress.[3]

1.6.2 Secondary word stress in quasi-compounds

Quasi-compounds–that is, complex forms that are stressed like compounds–can be illustrated most clearly in Go., e.g. in reduplicated preterits: *hvaí-hvȍp* 'he boasted' with the stress pattern of *frei-hàls* 'free-neck, freedom', *laí-lȏun* 'they reviled' with that of *láus-hàndja* 'empty-handed'. It appears almost certain that forms like *þiudin-assus* 'reign, kingdom', *mikil-dūþs* 'greatness', and *salbō-dēdeina* 'they might anoint' constituted a second type of quasi-compounds. In this instance the first immediate constituent bore initial primary stress followed by weak stress *(þíudin-, míkil-, sálbō-)*, and the second immediate constituent began

[3] Pre-Go. formed a number of compound feminine abstract nouns from verbs, chiefly those of the first three weak classes. Michels (1925:62ff.) concludes that these compounds, unlike others, retained the stress patterns of the corresponding verbs, e. g. *faùr-lágeins* 'a fore-laying, showing' with the stress of *faùr-lágjan* 'show'. Krause (1968: § 50.3) believes that Go. *gud-hūs* 'God-house, temple' and *faur-hāh* (NHG *Vorhang*) 'curtain' had primary stress on the second immediate constituent: *gùd-hûs, faùr-hắh*. Neither of these opinions appears to be correct, but they relate to Go. alone and have been discussed elsewhere (Bennett 1970: § 7.1a, § 10.4).

with a suffix, which might be either derivational, as in *-assus*, *-dūþs*, or inflectional, as in *-dēdeina*. Unless the second immediate constituents of such complex forms began with secondary stress *(þiudin-àssus*, *mikil-dùþs*, *sálbō-dèdeina)*, *þiudinassus* must be supposed to have three consecutive weak syllables and *salbōdēdeina* four. Yet Go. shows no evidence for more than two consecutive weak stresses (1.7.3). It would appear, accordingly, that compounds and quasi-compounds had the same basic stress pattern, regardless of whether the second immediate constituent began with a root or with a suffix, as respectively in OHG *érd-cùnni* 'earth-tribes' and *míhilnèssi* 'greatness, majesty'. In each instance this stress pattern arose through a purely mechanical process. In individual words, to be sure, it has been altered by syntactic interference, by contamination, by derivation, by real or imagined borrowing, by folk etymology, and by other factors, but it is still dominant in Gmc.

1.7 Weak word stress

It has been observed that the fixation of primary stress on word-initial syllables determined the distribution of secondary word stress. In turn, each governed the occurrence of weak word stress, which is consequently identifiable through a process of elimination as well as through phonologic evidence that is in full agreement with the testimony thus far considered.

1.7.1 Weak word stress on medial syllables

Medially, weak word stress occurred in two environments:

(a) First, it regularly fell on vowels between syllables bearing other degrees of stress: Go. *fídur-fàlþs*, OE *fēower-fèald*, OFri. *fiuwer-fàld* 'fourfold'; Go. *áuga-daùrō* (neut.), OHG *óuga-tòra* (fem.) 'window'. The evidence for this detail is clear. Under primary or secondary stress, /ur/ in Go. *fídur-* (= Lith. *ketur-*, Umbr. *petur-*) would have become /or/, spelled *aur*. In this instance, too, weak articulation is widely attested by a later loss of medial syllables, as in OE *fēower-fèald* > NE *fourfold*.

(b) Medial weak stress occurred also on syllable-forming suffixes that directly followed primary or secondary stress, e.g. Go. *-i-* in 3 sg. *háusida* 'heard', *-ō-* in *sálbōda* 'anointed,' *-ō-* and *-ei-* in 3 pl. *sálbō-dèdeina* 'might anoint'. Medially after a long root syllable, *-i-* as in *háusida* was to be syncopated in early times, long before the vowels of historic endings had begun to disappear. With Go. *háusida* contrast OE *hīerde* and OI *heyrði*, which originally contained medial *-i-*, as shown by the umlaut in their root syllables. The loss of originally long *-ō-* as in Go. *sálbōda* was

of course more delayed, but the process was essentially the same: OHG *sálbōta* > MHG *sálbete* [sálbətə] > NHG *salbte*, which still retains its ending. Despite the evidence, Streitberg (1896:169) asserts that long medial syllables bore a strong secondary stress when following long root syllables, as in OE gen. pl. *ōðèrra* (sic) 'other'. He does not explain, however, why a vowel supposedly bearing strong secondary stress would be lost as if weakly articulated. In OE *ōðerra* > ME *ōðre*, as also in OHG *sálbōta* > NHG *sálbte*, it was the medial syllable that was lost, not the ending.

1.7.2 Weak word stress on syllable-forming endings

Syllable-forming endings were weakly stressed: OE *fúglas* 'birds', *dǣges* 'of a day', *súnu* 'son', Go. *laí-lǒun* 'they reviled'. This weak articulation produced a loss of final syllables that began in preliterate times, as in PGmc. **númanaz* > Go. *numans*, OE *nomen* (etc.) 'taken', and was to continue for many centuries afterward, as in OE *fúglas* > NE *fowls*, OE *dǣges* > NE *day's*, OE *súnu* > NE *son*.[4]

1.7.3 Consecutive weak word stresses

Two consecutive weak stresses within a word, though apparently no more than two, were still very common in Go. but somewhat less so in the other early Gmc. languages: *ásilus* (OE *esol*, OS OHG *esil*) 'donkey', *háusida* (OE *hīerde*, etc.) 'he heard', masc. acc. *áinana* (OE *ānne ǣnne*, OHG *einan*) 'one'. As a rule, the second of two consecutive weak syllables was lost much sooner, beginning in preliterate times, e.g. PGmc. **þéwðanaz* > Go. *þiudans* (etc.) 'king', and continuing for many centuries afterward, as in OE *físceras* > NE *fishers*, OE *Wélenga-fòrd* > NE *Wallingford*. But when the first of the consecutive weak syllables contained *-i-* preceded by a long root syllable, the first was to disappear earlier: Go. *háusida* but OE *hīerde* (1.7.1 b). If the first of the consecutive weak syllables contained a long vowel preceded by a long root syllable, the loss of this vowel was more delayed, but the ultimate outcome was the same: OHG *sálbōta* > MHG *sálbete* [sálbətə] > NHG *salbte*. Though it is clear that the two consecutive weak stresses were already different in the preliterate era, they could not contrast in identical positions within words, so that each occurred as a positional variant of weak stress.

[4] Michels (1925:62ff.) argues that Go. feminine verbal abstract nouns like *dáupeins* 'baptism' (cf. *dáupjan* 'baptize') bore secondary stress on syllable-forming endings: gen. *dáupeinàis*, dat. *dáupeinài*, and so on. If this conclusion were correct, however, nom. sg. *dáupeins* would not contain *-eins* < **-īn(i)z*, with loss of weakly stressed *-i-*, but **-einìs*.

1.8 Primary syntactic stress

By its very nature, primary syntactic stress depends upon the circumstances involved in the speech situation, the attitude of the speaker, and the meaning of what he says. All these are highly variable factors, no matter how real they may be at a given moment. As might be expected, the evidence in this instance is extremely sparse. Alliterative verse does indeed indicate primary stresses but does not distinguish them as being syntactic, and, if meaning is taken to be the criterion, it may lead to various subjective interpretations. For the most part, punctuation in prose yields little that is admissible as evidence. In a few instances, to be sure, the Skeireins ms. (Cod. Ambrosianus E) uses the mark :, which it usually employs to denote a pause or full stop, to indicate a rhetorical emphasis of preceding words, as in *judaiwiskom: ufarranneinim* III b 9f. 'the JEWISH sprinkling' (as contrasted with John's baptism), *fin̄s: laiseins* IV b 7 'the LORD'S teaching' (unlike John's), *þo afgudon haifst: sabailliaus jah markailliaus* IV d 18–21 'that IMPIOUS CONTENTION of Sabellius and Marcellus' (who dared to assert that the Father and the Son are a single Person). Similarly, the Skeireins document may employ the mark ·, which it normally uses to indicate brief pauses, to express a light emphasis, as in *twos · ganamnida waihts* II d 14 'he designated [no more and no less than] *two* things' (the visible water and the envisioned Holy Spirit in baptism). But the sum total of the available evidence is more suggestive than informative.

1.9 Secondary phrase stress

1.9.1 Verb phrases, compound verbs, and adverbs plus verbs

For the immediate purpose it is necessary to distinguish sharply among three classes of forms that are conventionally treated as one. It is equally necessary to concentrate attention on Go., which in one respect represents a stage of development that is considerably more archaic than that of its sister languages.

(a) In describing Go. forms like *at-giban* 'deliver, grant', *ga-saihvan* 'see', *ga-sandjan* 'send', *uf-wōpjan* 'cry out', and *us-giban* 'render, yield', it has become customary to refer to elements like *at-*, *ga-*, *uf-*, and *us-* as prefixes of compound verbs. In Go., however, such elements were still proclitics of verb phrases. By definition, a compound like NE *géntlewòman* = 'a feminine member of the gentry' is not expandable through an interpolation of additional elements, whereas a phrase like *a gentle woman* readily accepts internal expansion, as in *a gentle, kindly old woman.*

In this phrase, the article *a* [ə] functions as a proclitic; that is, it is not stressed as a separate word but as an element preceding the first primary stress. Whereas NHG *ge-* and *er-* are clearly inseparable, the respective Go. forms *ga-* and *us-* were much less captive and readily separable from the verb proper, e.g. Mark 8.23 *ga-u-lva-sēlvi* 'whether *(-u-)* he could see anything *(-lva-)*' and Luke 20.25 *us-nu-gibiþ* 'render ye therefore *(-nu-)*'. Similarly, *at-giban* is expanded in Mark 14.44 to *at-uh-þan-gaf* 'and then he delivered', *ga-sandjan* in 2 Cor. 8.18 B to *ga-þ-þan-miþ-sandidēdum imma* 'and then we have sent with him', *uf-wōpjan* in Luke 18.38 to *ub-uh-wōpida* 'and he cried out', *us-gaggan* in Gal. 2.2 AB to *uz-uþ-þan-iddja* 'and then I went forth', and so on. Structurally, Go. forms like *at-giban* and *uf-wōpjan* were not compound verbs but verb phrases.

(b) Unlike verb phrases, which were very numerous, Go. compound verbs were rare. They began with roots instead of proclitics, were incapable of internal expansion, and were stressed like other compound words: *úbil-waùrdjan* 'speak evil of' like *úbil-waùrds* 'evil-speaking, railing', *wája-mȅrjan* 'blaspheme' like *wája-mȅrei* 'blasphemy'.

(c) A number of Go. forms that are conventionally classified as compound verbs were merely sequences of words, namely adverbs followed by verbs. Michels (1925:71), for instance, says that Go. 'verb prefixes' occasionally bore primary stress, as in *ínngaggan* (sic) 'go in' and *útgaggan* (sic) 'go out'. But *inn* and *ūt* were separate adverbs; the corresponding proclitics were respectively *in-* and *us-*, as in Luke 15.28 *iþ atta is usgaggands ūt bad ina* 'but his father, going out, entreated him'. Similarly, with the Go. verb phrase *faùr-gággan* 'pass by' (= NHG *ver-gehen*) contrast the word sequence *faúra gággan* 'go before' (= NHG separable *vor* plus *gehen*). Go *inn*, *út*, *faúra*, and *únþa* (in *únþa þliuhan* 'flee') were neither proclitics of verb phrases nor elements of compound verbs. Compound verbs like *wája-mȅrjan* had one stress pattern, adverbs plus verbs like *faúra gággan* another. The stress of verb phrases, which will be considered below, was distinct from both.

1.9.2 Proclitics of verb phrases, excluding Gothic *ga-*, Old English *ge-*, etc.

Go. preverb proclitics other than *ga-* bore initial secondary phrase stress: *ànd-bíndan* 'loosen', *bì-árbàidjan* 'work, labor', *faùr-gággan* 'pass by', *ùs-láubjan* 'permit', *tùz-wȅrjan* 'doubt', *twìs-stándan* 'take leave of', pres. part. *àt-gággands* 'going', past part. *àf-wálwiþs* 'rolled away'. Not bearing primary stress, proclitics do not alliterate in Gmc. verse. In Go., the first immediate constituents *ánda-* and *faúra-* are replaced respectively by

ànd- and *faùr-* when occurring as preverb proclitics, as in *ánda-waùrdi* '(an) answer' beside *ànd-waúrdjan* '(to) answer', *faúra-gàggja* 'foregoer, steward, governor' beside *faùr-gággan*, above. Conversely, that proclitics other than *ga-* (OE *ge-*, etc.) were not weakly stressed is shown by the later Gmc. development of their vowels, which were to be much better preserved than the vowels of endings; contrast, for instance, Go. *ùs-láub-eiþ* 'permits' with NHG *er-laub-t*. In Go., too, the vowels *aì aù* as in proclitic *faìr-* and *faùr-* never occur in weakly stressed syllables of native words.[5]

1.9.3 Initial secondary phrase stress on partly clitic forms

In individual instances PGmc. forms underwent the operation of Verner's law as a result of their bearing an initial secondary phrase or clause stress, e.g. IE **tosmē* > PGmc. **þazmē* > Go. sg. dat. masc., neut. *þamma* 'this, that'; IE **esmi* > PGmc. **ezmi* > **immi* > Go. *im* 'am'; IE **senti* > PGmc. **sinði* > Go. *sind* 'they are'. If these forms had not been subject to reduced syntactic stress, /z/ would not have developed in **þazmē* or **ezmi*, nor would /ð/ have occurred in **sinði*. And conversely, if **þazmē* and **sinði* had always borne a reduced initial stress, their initial consonants would have become voiced, as in IE **kom-́* > PGmc. **ga(n)-́* in 1.10.1. It would appear, accordingly, that forms like **þazmē*, **ezmi*, and **sinði* varied in stress in keeping with their syntactic context, as their counterparts in the living Gmc. languages still do.

1.10 Weak phrase stress

1.10.1 PGmc. **ga(n)-́* > OI *g-* Ø-, OFri. *ge- ie- e- i-* Ø-, etc.

Most PGmc. proclitics had strongly stressed co-allomorphs, e.g. **ùƀ-* and **ùz-* in verb phrases but **úf-* and **ús-* in compounds. PGmc. **ga(n)-́*, on the other hand, was always proclitic and weakly stressed, as its phonologic history shows. Etymologically, it corresponds to the proclitic form of IE **kom* (Pokorny 1959:612–3): Lat. *cum -cum com- con- co-*, OIr. *com- cum- co- cu-*, Albanian *kë-*, Osc. *com co* (prep.), etc. That proclitic **kom-́* already occurred before roots of verbs, nouns, and adjectives in

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[5] Michels (1925:68) conjectures that Go. proclitics in expanded verb phrases like *at-uh-þan-gaf* (1.9.1a, above) bore primary stress but adds that he can find no evidence to support this conclusion: 'Mir würde *át-uh-þan-gaf* sehr wohl diskutabel erscheinen; doch weiß ich nichts Entscheidendes für diese Möglichkeit vorzubringen.' Though often repeated, this conjecture remains unsupported.

pre-Gmc. times is indicated by such Go.-Lat. cognates as *ga-qiman* = *con-venire* 'come together, assemble', *ga-máins* = *com-mūnis* 'common', and similarly Go. *ga-arbja* = OIr. *com-arbe* 'co-heir, fellow heir'. That this form already bore a reduced accent before the fixation of stress is shown by the operation of Verner's law: **kom-* > PGmc. **ɣan-*. That **ɣan-* was still weakly articulated after the fixation of stress is indicated by its loss of /n/ < IE /m/, as in weakly stressed final syllables. Otherwise, this /n/ would have survived after a short vowel, as in IE **kʷom* (OLat. *quom*) > PGmc. **xʷan* > Go. *ƕan* 'when'. And that this proclitic continued to bear weak stress is shown by its subsequent development. All the historic reflexes of PGmc. **ɣa(n)-* are weakly stressed–if, indeed, they have retained their vowels or have survived at all: OI *g-líkr* and *líkr*, OE *ge-líc līc* > NE *like*, OFri. *līk*, OLFra. *ge-līc* > Du. *ge-lijk*, OHG *gi-līh* > NHG *g-leich* 'like'. The development of PGmc. **ɣan-* under secondary stress would have been decidedly different; as already observed (1.9.2), the vowels of proclitics bearing secondary stress were to be much better preserved than the vowels of endings.[6]

1.10.2 Gothic *-u -u-* and *-uh -uh-*

The Go. phrase-bound forms *-u -u-* and *-uh -uh-* bore only weak stress: *ga-u-láubjats* 'do ye two believe ?', neut. *þat-uh* 'this, that'. *-uh* loses *u* after a stressed vowel, as in *sá-h* 'he', often after a proclitic vowel, as in *ga-þ-* for *ga-uh-* in *ga-þ-þan-miþ-sandidēdum* (1.9.1a), and may lose its *h* as well when final after etymologically long vowels bearing weak stress, as in masc. acc. *ƕárjanō* for *ƕárjanōh* 'each, every'. If *-u* corresponds to IE **-u* and *-uh* to IE **-u-kʷe* (Feist 1939:508, 514; Pokorny 1959:74, 635, 1106), their common stress in Go. is understandable. Neither survived in later Gmc. Considering their treatment in Go., their absence from the later Gmc. records is not surprising.

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[6] It is conventionally assumed that in Go.–though not in the other Gmc. languages–*ga-* bore primary stress when combined with nouns or adjectives but had reduced stress when combined with verbs: *gá-baùrþs* 'birth', *gá-lèiks* 'like' but *ga-qíman* 'come together, assemble'. See Streitberg 1896:168 and 1920:160; Kieckers 1928:100–1; Hirt 1931:146; Mossé 1956: § 29; Guxman 1958: § 32; Krause 1968: § 50.2. Up to 1968, the only dissenting opinion appears to be that of Prokosch (1939:119): '*ga-* . . . was probably always unstressed.' The theory that Go. *ga-* bore primary stress before nouns and adjectives, as propounded by Kluge (1883:70), was based on two etymologies, both incorrect. The adoption of this theory by Streitberg (1896:168), who added two more incorrect etymologies, may help to account for its wide currency. In any event, the theory relates to Go. alone and has been discussed elsewhere (Bennett 1968a).

1.11 Summary: the Proto-Germanic stress patterns

No historic Gmc. language preserved the stress patterns of PGmc. with complete fidelity. With every weakening or loss of a vowel or syllable, the stress pattern of the word (or phrase or clause) in which it occurred was changed. The effects of this process are already discernible in Go. and the earlier Ru. inscriptions, which are relatively archaic, but the restructuring of Gmc. stress was to be cumulative, continuing for many centuries afterward. Thus a morphologically simple form might develop from a compound, as in NE *stírrup* < OE *stíg-rȁp* 'mount-rope' (cf. NE *Appletreewick*, now pronounced /ǽptwìk/). Similarly, a single word might evolve from an entire clause, as in OI *nakkvarr nǫkkur* 'a certain, some, a' < **ne wajt ek x^{w}ariR* 'I don't know who' (= Go. *ni wait ik hvas*) and NE *goodby* for 'God be with you'. Consequently, in a great number of instances the secondary and weak stresses of PGmc. (and sometimes its primary stress as well) are simply not applicable to the historic Gmc. languages, which represent various later stages of development. Accordingly, the stress patterns summarized below refer specifically to PGmc.:

(a) Primary word stress (1.5) was fixed on word-initial syllables: **ðágaz* > OI *dagr*, Go. *dags*, OE *dæg*, OFri. *dei dī*, OS OLFra. *dag*, OHG *tac* 'day'. It has been suggested (1.2.3) that this stress was fixed before /p t k/ had begun to shift.

(b) Secondary word stress (1.6) occurred on the first syllables of second immediate constituents in both compounds and quasi-compounds. In a compound, each immediate constituent contained a root, e.g. **áwga -ðùr-* > Go. *áuga-daùrō* (neut.), OE *ēag-dùra* (fem.), OHG *óuga-tòra* (fem.) 'eye-door, window'. A quasi-compound, on the other hand, contained only one root. The first constituent might be a prefix, as in **x^{w}é-x^{w}ǒpe* > Go. *hvaí-hvǒp* 'he boasted', or the second immediate constituent might begin with a suffix, as in **éƀn-àss-* > Go. *ibn-àssus*, **éƀn-èss-* > OS *ébn-ìssi* 'evenness, equality'.

(c) Weak word stress (1.7) might occur on medial or final syllables. Medially, it fell on vowels between syllables bearing other degrees of stress, e.g. the second /a/ in **áwga-ðùr-* > Go. *áuga-daùrō*, above, and on the vowels of suffixes directly following either primary or secondary stress, e.g. /ō/ in 2 sg. pret. ind. **sálƀōðēz* > Go. *sálbōdēs* 'didst anoint', /ō/ and /ī/ in pret.-stem 1 pl. opt. **sálƀō-ðȇðīmē* > Go. *sálbō-dȇdeima* (1.6.2) 'might anoint'. Weak word stress occurred likewise on syllable-forming endings: **wúrðan* > OI *orð*, Go. *waúrd*, OE OFri. OS *word*, OHG *wort* 'word'.

(d) Though primary syntactic stress (1.8) surely existed in PGmc., the evidence for its occurrence is far too meager to permit definite conclusions.

(e) Secondary phrase stress (1.9) occurred on all proclitics of verb phrases except **ga(n)-*: **ùz-láwƀjanan* > Go. *ùs-láubjan* 'permit'. The same stress might occur on the initial syllables of forms like **þazmē* > Go. sg. dat. masc. neut. *þamma* 'this, that', **ezmi* > **immi* > Go. *im* 'am', and **sinði* > Go. OE OFri. OS *sind*, OHG *sint* 'they are', although these forms might also be emphasized, as in present-day Gmc.

(f) Weak phrase stress (1.10) regularly fell on the proclitic **ga(n)-*, regardless of whether it was combined with a noun, an adjective, or a verb; there is no evidence to indicate that it was restressed in an expanded verb phrase. The Go. clitics *-u(-)* and *-(u)h(-)*, which were weakly stressed, were not to survive in later Gmc.

2. Juncture

2.1 Evidence for juncture

Clues bearing on the kinds of transition that occurred between successive sounds in PGmc.–namely its juncture patterns–are provided (a) by one Go. development of IE /e/, (b) by preliterate contractions appearing in some forms, (c) by the absence of contractions in other forms, and (d) by certain scribal practices in writing. Unless otherwise indicated, all historic forms cited below represent Go., in which the juncture phenomena of PGmc. are best preserved.

2.2 Internal open juncture

When two successive vowels remained uncontracted within the same form, a clear-cut syllable break–that is, internal open juncture–occurred between them, as in Go. *fra-ïtiþ* 'devours'; in Go. handwriting, a dieresis above *i* indicates that it begins a syllable. Open juncture, whether internal or external, will be represented here by the symbol +: *frà+ïtiþ*, *+átta+ únsar+*. In PGmc., no two consecutive vowels contracted if /+/ intervened, and this was still true of Go. in the time of Wulfila, e.g. *áftra+ànastȍdeins* 'an again-beginning, renewal', *bí+ȕhti* 'custom, practice', *bì+áukan* 'add to', *(àf)aí+àik* 'he denied'. Moreover, the presence of internal open juncture is indicated by one Go. development of IE /e/. The unconditioned Go. reflex of this vowel was /i/: **eti* > *iþ* 'but'. But before internal open juncture and a following syllable invariably containing a low or mid vowel, the Go. reflex was always /e/, spelled *ai:* IE 3 sg. **e-awge* > PGmc. **é+àwke* > *-aí+àuk* 'added' (Bennett 1967). Regardless of whether the two vowels were in sequence, as also in *-aí+àik* 'denied', or whether one or more consonants intervened, as in *laí+lȍun*

'reviled', *staí-stàld* 'possessed', this conditioned development took place without exception. Thus IE **eti* produced *iþ* 'but', whereas the combination of this form with PGmc. + and **þaw* 'otherwise, else' produced Go. *aíþ+þàu* 'or, else'. In all such forms, /+/ occurred directly before the onset of either primary stress *(frà+ítiþ, bì+áukan)* or secondary stress *(áftra+ànastòdeins, bí+ằhti, -aí+àuk, -aí+àik, laí+lȍun, -staí+stàld aíþ+þàu)*. In all such instances, too, /+/ intervened between the immediate constituents, regardless of whether they belonged to compound words *(áftra+ànastòdeins, aíþ+þàu)*, to quasi-compounds (*-aí+àuk, -staí+stàld*, etc.), or to verb phrases (*frà+ítiþ*, etc.). And, as the foregoing examples illustrate, internal /+/ occurred as readily before consonants as before vowels, as still in NE *hýdro+càrbon* and *póly+èthyl*. To be sure, not all Go. forms are as phonologically analyzable as those that have been cited here, but it does not appear unlikely that internal open juncture was generally characteristic of compounds, quasi-compounds, and verb phrases, as respectively in *áuga+daùrō* 'eye-door, window', *þíudin+àssus* 'reign, kingdom', *ùs+íddja* 'went out'. Whether internal /+/ was invariably realized in PGmc. is a question on which it appears fruitless to speculate. We can reconstruct speech patterns, but they are no substitute for native speakers.

2.3 Internal close juncture

A relatively unmarked, ill-defined transition between successive sounds within the same form–namely internal close juncture–is also phonologically identifiable. This type, which will be indicated here by absence of the symbol +, differed from internal /+/ in two major respects. First, internal close juncture produced many contractions of vowels that came together, as in IE **sāgijesi* > Go. *sōkeis* 'seekest'; contrast *-aí+àuk, frà+ítiþ*, etc. And even when no contraction occurred, as in IE **sāgijō* > Go. *sōkja* 'I seek', there was still no vowel hiatus. Secondly, whereas /+/ occurred between the immediate constituents of all compounds, quasi-compounds, and verb phrases that are phonologically analyzable (2.2), in simple and complex forms the counterpart of /+/ was internal close juncture; with *aíþ+þàu, -aí+àuk, frà+ítiþ* (etc.) contrast *is* 'he', *háusida* 'he heard', *saíh* 'see thou', *fúnins* 'of fire'.

2.4 External open juncture

As already observed, no two consecutive Go. vowels contracted within the same form if /+/ occurred between them, as in *frà+ítiþ, áftra+ànastòdeins, bí+ằhti*. The same absence of contraction appears in consecutive

vowels of successive words, as in *atta+unsar* 'Our Father', *ni+im* 'am not', which represent instances of external open juncture, namely the occurrence of /+/ at the beginnings or ends of words.

The foregoing examples are limited to consecutive vowels (*a+i*, *a+a*, and so forth), but there is reason to believe that external /+/ in Go. was not confined to intervocalic positions. As a group, the early Gmc. languages had numerous contractions that had arisen from successive words in phrases and clauses. In Go., however, such contractions are extremely rare, their counterparts nearly always appearing as separate words, e.g. OHG *fiorzuc* 'forty' but Go. acc. *fidwōr tiguns* 'four decades', OHG *hiutu* (for instr. *hiu tagu*) 'today' but Go. dat. *himma daga* 'on this day'. A number of the original phrases and clauses had begun with **ne* 'not', and in this instance also Go. nearly always shows separate words rather than contractions, e.g. *ni im* (OE *neom*) 'am not', *ni was* (OE *næs*) 'was not', *ni wēsun* (OE *nǣron*) 'they were not', *ni waist* (OE *nāst*) 'dost not know'. Similarly, OI *nakkvar nǫkkur* 'a certain, some, a' contracted from the clause **ne wajt ek x^{w}ariR* 'I don't know who', but here again Go. would have no contraction: *ni wait ik hvas*. It would appear, accordingly, that Go. external /+/ might occur before or between consonants (*himma+daga*, *fidwōr+tiguns*, etc.) as well as between vowels (OHG *nio* 'never' but Go. *ni+aiw* 'not ever', OHG *nalles* or *nals* but Go. *ni+allis* 'not at all'). Among the phrases and clauses under consideration, only two lost external /+/ in Go., namely *nibai* 'if not, unless' for *ni ibai* and *nist* 'is not' for *ni ist*. In contrast, *karist* 'it concerns' (for *kara ist*) and *þatist* 'that is' (for *þata ist*) have a dieresis above *i* to indicate the beginning of a syllable. Not all relevant instances are analyzable, of course, but if external /+/ is clearly discernible in Go., it may well have been widespread in PGmc.

2.5 Summary: Proto-Germanic juncture

The changes in stress that have been noted in 1.11 were to alter not only the segmental structure of historic Gmc. words but in many instances their junctural features as well. Accordingly, the types of juncture summarized below refer specifically to PGmc.:

(a) Internal /+/ (2.2), which might precede or follow primary stress, occurred between the immediate constituents of all phonologically analyzable compounds (**éþ+þàw* > Go. *aiþ+þàu* 'or, else'), quasi-compounds (3 sg. **é+àwke* > Go. *-aí+àuk* 'added'), and verb phrases (*frà+étanan* > Go. *frà+ítan* beside OE *fretan* and OHG *frezzan* 'devour').

(b) Internal close juncture (2.3) occurred in simple forms (**iz* > Go. *is*, early OHG *ir* 'he'), between the ultimate constituents of complex

forms (**sex^{w}eði* > Go. *saihviþ*, OE *siehþ*, OHG *sihit* 'sees'), and within each immediate constituent of a compound, quasi-compound, or verb phrase, as above in (a).

(c) External /+/ (2.4) marked the beginnings and ends of phonologically free forms. In Go., this type of juncture was especially well preserved in phrases and clauses that remained uncontracted, and it may well have been even more characteristic of PGmc. Whether it was invariably realized is a problem that remains unsolved for lack of further evidence.

3. Length and pitch

3.1 Vowel length and the circumflex-vowel theory

Between the 1880's and 1952, it was generally believed that IE and PGmc. final syllables might contain not only short or long vowels but also others constituting a distinct third type marked by changing pitch and by overlength, namely the circumflex. The circumflex vowels, which were ascribed to IE contractions and compensatory lengthenings, were believed to be attested by the Gk. circumflex accent (*theãs* 'of a goddess') and by the Lith. Schleifton (*mergõs* 'of a girl'). But, in a series of articles culminating with the publication of a separate volume (1952; ²1958: 106–368), Kuryłowicz demonstrated to the satisfaction of many comparatists (and to the dismay of many as well) that the Gk. circumflex and the Lith. Schleifton represent later, mutually independent innovations. Moreover, certain details of Vedic scansion point to consecutive vowels–not vowel contractions–in IE. Since 1952 a few investigators have undertaken to replace the circumflex-vowel theory by formulations that are in keeping with ascertainable data. Here belong Hempel (1962; ⁴1966: §§ 40–2), who deals primarily with Go., and Lane (1963), who is concerned with the other Gmc. languages as well. Inasmuch as this problem is most relevant to the study of PGmc. syllabics and morphology, its details will not be considered here.

3.2 The assumed Proto-Germanic long stops

It is conventionally assumed that /n/, when preceded by the PGmc. reflex of an IE stop, was assimilated to it, a labial plus /n/ producing /pp/, a dental plus /n/ becoming /tt/, and a dorsal plus /n/ yielding /kk/, although the precise details of this change are not always stipulated. Marchand (1957b) has advanced some cogent arguments against the assumption that /pp tt kk/ developed within the PGmc. period rather than later. This problem, however, is largely peripheral to the topic under consideration here and so will not be treated in detail.

3.3 Pitch

Unlike the other prosodic features of PGmc., pitch has left no phonologically identifiable clues. It may well have been distinctive, as still in NE $_{y}e^{s}$ = 'is that so?' beside $^{y}e_{s}$ = 'of course', but surmises are no substitute for tangible evidence.

The Proto-Germanic Syllabics (Vowels)

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Outline

0. Introductory remarks 118
1. Phonemic contrasts in root syllables 120
1.1 Short/lax vowels 120
1.2 Long/tense vowels and vowel clusters 124
1.3 Morphophonemic alternations 127
2. Distinctive features of the root vowel phonemes 132
2.1 Short/lax subsystem 132
2.2 Long/tense subsystem 133
3. Phonemic contrasts in nonroot syllables 135
4. Proto-Germanic and Proto-Indo-European 136
4.1 Proto-Germanic and Proto-Indo-European correspondences 136
4.2 Syllabic resonants 137
4.3 Nonroot syllabics 138
5. Conclusion 139

0. Introductory remarks

The evidence for reconstructing a protolanguage must be obtained from all descendant languages and dialects in order to establish the original contrasts and a plausible phonetic 'reality' behind those contrasts. For reasons of space, however, this study will restrict itself to the citation of forms from Go., OHG, OS, OE, and OI, as well as occasionally from NWGmc. (the language of the earliest Ru. inscriptions). Considerations of space have also required that the number of examples be kept to a minimum. I have therefore attempted to choose those which reveal best the general pattern of the phonological development, even though this sometimes means citing dialectally restricted forms (e.g. Anglian OE) rather than the more 'standard' forms (e.g. West Saxon OE) which have undergone all manner of paradigmatic leveling, or rule reordering, or whose graphic representations are ambiguous. Further examples may be gleaned from the handbooks of the individual dialects.

For the sake of simplicity and clarity, developments in root syllables are presented in relation to the prehistoric vocalism of the following syllables, even though that vocalism is not discussed until later.

The vocalic systems of the root syllables in the dialects cited are presented in Table 1, along with their more important graphic representations. It is impossible to undertake here a detailed synchronic and diachronic analysis of the system of each older dialect, although such an analysis is a prerequisite for any comparative undertaking. My analyses correspond most closely to those presented in Antonsen (1967b and 1970) for NWGmc., in Voyles (1968) and Jones (1958) for Go., in Moulton (1961) and Antonsen (1964) for OHG, in Moulton (1961) for OS, in Hockett (1959) and Antonsen (1967a) for OE, and in Benediktsson (1967–8) for OI. The macron (/ˉ/) indicates tenseness, length, or a combination of tenseness and length. In most instances, we are not in a position to determine the exact phonetic nature of this feature, although most investigators agree that the feature was distinctive in all the older dialects with the possible exception of Go. For the latter, it has been argued on the basis of graphemic evidence that length was not distinctive (Marchand 1955b; 1970: § 2.3; Bennett 1964). Since none of the other dialects systematically distinguish in their orthographies between long/tense and short/lax vowels, I find the argument unconvincing for Go. and prefer to trust in the etymological evidence (see Voyles 1968:722 and fn. 1; Vennemann 1971: § 5), as well as in the internal evidence provided by the strong verbs of the first two ablaut series, which clearly distinguish the vocalism of the past singular from the past plural in

forms like *baiþ – bidum* and *bauþ – budum*, so that it is most likely that verbs such as *taih – taihum* and *tauh – tauhum* display only a graphic coalescence with ⟨ai⟩ representing /ǣ/ and /æ/, ⟨au⟩ representing /ɔ̄/ and /ɔ/. On the origin of this graphic coalescence, see D'Alquen (1967).

All of the vowels in Table 1 occur in both short/lax and in long/tense varieties, except that in Go., OS, and OI the long/tense subsystems contain phonemes without correspondences in the short/lax subsystems. These additional units are placed within parentheses and distinguished with a macron. To avoid graphic confusion, I consistently use IPA symbols to designate phonemes in all the dialects (e.g. /y/ instead of /ü/ in OHG, /ɔ/ instead of /ǫ/ in OI). In conformity with the other contributions to this volume, the *z*-rune (ᛉ) is transliterated as ʀ, even though there is no linguistic justification for not using *z*.

While phonemic status is assumed for *i*-umlauted vowels in OHG (Antonsen 1964), the situation in OS seems to indicate that the umlauts were still positional variants everywhere except for the socalled 'primary

Table 1

	Front		Central	Back	
	Spread	Rounded		Spread	Rounded
Northwest Germanic					
High	/i/ *i*				/u/ *u*
Mid	/e/ *e*				/o/ *o*, *u*
Low			/a/ *a*		
Gothic					
High	/i/ *i* (*ei*)		(/ĭ/ *iu*)		/u/ *u*
Mid	(/ē/ *e*)				(/ō/ *o*)
Low	/æ/ *ai*		/a/ *a*		/ɔ/ *au*
Old High German					
High	/i/ *i*	/y/ *u*			/u/ *u*
Mid	/e/ *e*	/ø/ *o*			/o/ *o*
Low	/æ/ *a*		/a/ *a*		
Old Saxon					
High	/i/ *i*				/u/ *u*
Mid	/e/ *e*				/o/ *o*
Low	(/ǣ/ *e*)		/a/ *a*		(/ɔ̄/ *o*)
Old English (/ø/ is Anglian, for which West Saxon has /e/)					
High	/i/ *i*	/y/ *y*		/ɯ/ *io*, *ie*	/u/ *u*
Mid	/e/ *e*	/ø/ *oe*	/ə/ *ea*	/ʏ/ *eo*	/o/ *o*
Low	/æ/ *æ*		/a/ *a*		
Old Icelandic					
High	/i/ *i*	/y/ *y*			/u/ *u*
Mid	/e/ *e*	/ø/ *ø*			/o/ *o*
Low	(/ǣ/ *æ*)		/a/ *a*		/ə/ *ǫ*

umlaut' of PGmc. /a/. I have therefore left the variants undesignated in Table 1. The presence of the allophones is conclusively proven by the MLG and MnLG reflexes (see Schirmunski 1962:179–81 and 194–8).

Since interdialectal and intradialectal morphophonemic and distributional criteria are the only basis upon which phonological reconstructions can be made, there is always the possibility that phonological developments may be obfuscated by morphological restructuring (rule reordering, substitution of new underlying forms). One of the most important and difficult tasks of the investigator is therefore the separation of phonological from morphological developments. In the following presentation, an attempt has been made to distinguish between the two and to treat only the former, in spite of recent arguments against the validity of such a distinction (see e.g. Postal 1968:208–28; King 1969:119–34).

I am indebted to Frans van Coetsem and Herbert Penzl for helpful comments.

1. Ponemic contrasts in root syllables

In the following, the vowels of Go. are taken as the point of departure for the comparisons. This arbitrary choice in no way implies any priority of the Go. vowel system. In referring to the conditioning environments, 'high-front' represents original unstressed */-i, -ī, -j/, 'high-back' represents */-u, -ū, -w/, while 'low' stands for original */-a, -ǣ, -ō, -ai, -au/ (see 3).

1.1 Short/lax vowels

1.1.1 Gothic /a/. The other dialects display a variety of vowels corresponding to Go. /a/. The variation can be stated in terms of the following environments:

(1) before velar consonants /h(C), rC, lC/ + high-front:

Go. *warmjan* 'to warm', OHG /æ/ *warmen*, OS /a/ = [æ] *warmian*, OE (West Saxon) /ɯ/ *wierman*, OI /e/ *verma;*

(2) before medial */-u-/ or */-a-/ + high-front:

Go. *magaþeis* 'maids', OHG /æ/ *magati*, OS /a/ = [æ] *magaði*, OE /æ/ *mægeþ*, *æþele* 'noble', OI. /ø/ *øðle* 'quality';

(3) before high-front:

Go. *gasteis* 'guests', OHG /e/ *gesti*, OS /e/ *gesti*, OE /e/ *g(i)estas*, OI /e/ *gester;*

(4) before high-back:

Go. *skadus* 'shadow', OHG /a/ *scato*, OS /a/ *scado*, OE /ə/ *sceadu*, *ealu* 'ale', OI /ɔ/ *ǫl;*

(5) elsewhere:

Go. *dags* 'day', *dagos* 'days', OHG /a/ *tag*, *taga*, OS /a/ *dag*, *dagos*, OE /æ/ *dæg*, /a/ *dagas*, OI /a/ *dagr*, *dagar* (on OE /æ ~ a/, see Antonsen 1967a:9–10).

The complementary environments of the vowels in the non-Go. dialects clearly mark these as having been originally distributional variants of a single protophoneme, */a/.

1.1.2 Gothic /u/ and /ɔ/. These two phonemes occur in near-complementary distribution in Go., i.e. /ɔ/ before /h, hw, r/, and /u/ elsewhere (on the phonemicization of these original allophones, see D'Alquen 1967), and both correspond to the same sets of phonemes in the other dialects:

(1) before high-back:

Go. *gutum* 'we poured', *tauhum* 'we led', OHG /u/ *guzzum*, *zugum*, OS /u/ *gutun*, *tugun*, OE /u/ *guton*, *tugon*, OI /u/ *gutom*, *flugom* 'we fled';

(2) before nasal clusters:

Go. *bundans* 'bound (past. part.)', OHG /u/ *gibuntan*, OS /u/ *gibundan*, OE /u/ *bunden*, OI /u/ *bundenn;*

(3) before high-front:

Go. *guti* 'he poured (pret. opt.)', *waurkjan* 'to work', OHG /y/ *guzzi*, *wurken*, OS /u/ = [y] *guti*, *wurkian*, OE /y/ *gyden* 'goddess', *wyrcan*, OI /y/ *gyte*, *yrkja;*

(4) before low:

Go. *gutans* 'poured (past part.)', *waurd* 'word', OHG /o/ *gigozzan*, *wort*, OS /o/ *gigotan*, *word*, OE /o/ *goten*, *word*, OI /o/ *gotenn*, *orð*.

In addition to the high-front vowel [y], the non-Go. dialects also display a mid-front [ø] corresponding to Go. /u/ or /ɔ/, e.g. Go. *us-luka* 'opening (dat.)', OHG *lohhir* (beside *luhhir*) 'holes'; Go. *ga-drauhts* 'soldier', OS *drohting* (beside *druhting*) 'comrade'; Go. *dauhtr* 'daughter (dat.)', OE *doehter;* Go. *sunjus* 'sons', OI *søne* (beside *syne*). In all of these instances, a new underlying form with /o/ instead of /u/ was introduced into the environment high-front (on the phonemicization of the allophone [o], see Kuryłowicz 1952).

Since all of the vowels under consideration in the various dialects can be traced to original positional variants, it is necessary to reconstruct a single protophoneme, which on the basis of the earliest spellings and of the nonassimilated member ([u] before high-back and nasal clusters), may be designated by */u/.

1.1.3 Gothic /i/ and /æ/. Once again, these two phonemes of Go. occur in very nearly complementary distribution, with /æ/ before /h, hw, r/ and in reduplicating syllables (see Bennett 1967), while /i/ occurs elsewhere. This distribution, plus the fact that both phonemes alternate with the

same sets of vowels in the other dialects, makes it obvious that Go. /i/ and /æ/ developed from a single pre-Go. phoneme *[i ~ æ] (on the phonemicization of the variants, see D'Alquen 1967). The situation in the other dialects, however, is much more complicated, as can be seen from the following equations:

(1) before high-front:

Go. *miti þ** 'he metes' (cf. *mitid* 'you (pl.) mete'), *biti* 'he bit (pret. opt.)', *þaihi* 'he thrived (pret. opt.)', *hairdeis* 'shepherds'; OHG /i/ *mizzit, bizzi, digi, hirti;* OS /i/ *mitid, biti, thigi, hirdi;* OE /i/ *mitt, bite, þige* /ɯ/ *hierde;* OI /i/ *miðe* 'mead (dat.)', *bite, stige* 'climbed (pret. opt.)', *hirðer;*

(2) before nasal clusters:

Go. *finþan* 'to find', OHG /i/ *findan*, OS /i/ *findan*, OE /i/ *findan*, OI /i/ *finna;*

(3) before high-back:

Go. *skildus* 'shield', *mita* 'I mete', *-bitun* 'they bit', *hairus* 'sword', *-bairga* 'I hide'; OHG /i/ *scilt* (also *schelt*), *mizzu, bizzun, birgu;* OS /i/ *scild* (also *sceld*), *mitu, bitun, birgu,* /e/ *heru-(drorig)* 'sword-(bloody)'; OE /ɯ/ *scyld* (also *sceld*), *biotun,* /ɣ/ *meotu, heoru, beorgu;* OI /jɔ/ *skiǫldr, miǫðr* 'mead', *hiǫrr, biǫrgo(mk),* /i/ *bito;*

(4) before low:

Go. *skildaus** 'shield's' (cf. acc. sg. *skildu*), *mitan* 'to mete', *wair* 'man', *hairto* 'heart'; OHG /e/ *scheltes* (also *sciltes*), *mezzan, wer, herza;* OS /e/ *sceldes* (also *scildes*), *metan, wer, herta;* OE /ɣ/ *sceldes* (also *scyldes*), *heorte,* /e/ *metan, wer;* OI /ja/ *skialdar, hiarta,* /e/ *meta, verr.*

The correspondences between the dialects can be represented schematically as in Table 2.

Table 2

	High-front	High-back	Low
Go.	/i ~ æ/	/i ~ æ/	/i ~ æ/
OHG	/i/	/i/	/e/
OS	/i/	/i/	/e/
OE	/i ~ ɯ/	/ɯ ~ ɣ/	/e ~ ɣ/
OI	/i/	/i ~ jɔ/	/e ~ ja/

Mainly on the basis of the evidence of Go., OHG, and OS, it has been argued that PGmc. displayed only one front nonlow phoneme *[i ~ e] (Collitz 1905; Marchand 1957a, and following the latter, Moulton 1961, van Coetsem 1970:50–2, but with reservations expressed on p. 53). As we have seen, the Go. evidence suggests a single protophoneme, as does that from OHG and OS, if allowance is made for restructuring within

paradigms (e.g. OHG *scilt* ~ *schelt*, with /i/ generalized from the nom. dat. acc. sg. and nom. dat. acc. pl., or with /e/ generalized from the gen. sg. and gen. pl. of this original *u*-stem; on the possibility of leveling from the gen. form, see Benediktsson 1967:188). Similarly, OS *heru-* (for expected **hiru-*) could represent a generalization of /e/ from the gen. Still unaccounted for, however, is the representation of the proposed single phoneme *[i ~ e] in neutral environments, i.e. in those in which no assimilation took place, as before unstressed */-e/ or when no vowel followed. That unstressed */e/ did not effect the preceding root vocalism can be seen from OHG *beret* 'you (pl.) bear' (< PIE */b^{h}erete/), as well as from the fact that *a*-stem nouns occur throughout NGmc. and WGmc. with unpredictable root vocalism, e.g. OHG *scif* ~ *scef* 'ship', Dan. *skib*, Swed. *skepp;* OHG *wolf*, OS OE *wulf*, OI *ulfr* 'wolf'. Such instability can only be ascribed to paradigmatic leveling, and the only source for the forms with /i/ and /u/ (i.e. without *a*-umlaut) is the gen. sg., ending in */-es/, before which the original vowel was retained. An attempt by Hock (1972: § 9.8) to deny the existence of the genitive in */-es/ in early Gmc. is counterindicated by Go. /-is/, which can only reflect */-es/. In these neutral environments, OS shows /e/ in the imperative *ber* 'bear!', while OHG normally has /i/ in *bir*, but /e/ in *beret*. These forms could conceivably also be explained as levelings (see Joesten 1931).

In OE, the alternation between /i/ and /ɯ/ in the high-front environment and between /e/ and /ɣ/ in the low environment is due to consonantal influences, with the back vowels occurring before velars (thus *mitt* 'he metes', but *tiehþ* 'he cites', *metan* 'to mete', but *weorþan* 'to become'). In the high-back environment, however, both /ɯ/ and /ɣ/ occur under equivalent conditions, e.g. *biotun* 'they bit', but *meodu* 'mead'. While it is true that the spellings *io* (West Saxon *ie*, *y*) and *eo* are not clearly distinguished in OE in general, there can be no doubt that they were originally distinct (see Campbell 1962: § 293–301, and Hockett 1959; on the origin and significance of the spellings, see Antonsen 1967a). The somewhat ambiguous OE evidence is confirmed, however, by that from OI. Here, the alternation in the low environment between /e/ and /ja/, e.g. *meta* 'to mete', but *biarga* 'to hide', is traceable to an earlier */e/, but that between /i/ and /jɔ/ in the high back environment is not reducible to a single protophoneme, as may be seen by comparing the paradigms of the *u*-stems *viþr*, *viþar*, *viþe*, *viþ* 'wood', but *miǫþr*, *miaþar*, *miþe*, *miǫþ* 'mead' (see Beeler 1966; Benediktsson 1967). This evidence is further supported by developments in the vowel clusters (see 1.3.2–3), so that we must posit for PGmc. two contrasting front nonlow phonemes, */i/ and */e/ (Twaddell 1948; Fourquet 1952; Kuryłowicz 1952; Lehmann 1961; Antonsen 1963; Hock 1972).

1.1.4 Preliminary short/lax vowel phoneme inventory. For PGmc., we have established a four-phoneme contrast */i, e, a, u/. The distinctive features and phonetic realizations of these phonemes will be discussed below (2).

1.2 Long/tense vowels

1.2.1 Gothic /ī/. All of the dialects agree in having /ī/ in all positions, e.g. Go. *beitan* 'to bite', *beita* 'I bite', *beitiþ* 'he bites', OHG *bizan, bizu, bizit,* OS *bitan, bitu, bitid,* OE *bitan, bite, bitt,* OI *bita, bit, bitr.* OE and OI have conditioned variants before original */h/: OE /ɪ̄ə̄/ *liehþ* (OHG *lihit*) 'he lends', /ʏ̄/ *leon* (OHG *lihan*) 'to lend', *leo* 'I lend'; OI /jā/ *lia* 'to lend', /ē/ *le* 'I lent'. In addition, OI /ȳ/ is found in rounding environments: *ykua* (OHG *wihhan*) 'to yield'. A single protophoneme */ī/ may therefore be tentatively posited (but see 1.3).

1.2.2 Gothic /ē/. From the correspondences below, it is evident that Go. /ē/ is reflected in two different sets of phonemes in the related dialects. The first set displays variation in statable environments:

(1) before high-front:

Go. *merjan* 'to proclaim', OHG /ǣ/ *maren,* OS /ā/ = [ǣ] *marian,* OE (West Saxon) /ǣ/ *gemæran,* (Anglian) /ø̄/ *cwoen* (Go. *qens*) 'woman', OI /ǣ/ *mæra;*

(2) before high-back:

Go. *nemum* 'we took', *berum* 'we bore', *sehvum* 'we saw', OHG /ā/ *namum, barum, sahum,* OS /ā/ *namun, barun, sawun,* OE /ā/ *sawon,* /ǣ/ *bæron,* /ō/ *nomon,* OI /ɔ̄/ *bǫrom, sǫm,* /ō/ *nomom;*

(3) elsewhere:

Go. *seþs* 'seed', *nehv* 'near', OHG /ā/ *sat, nah,* OS /ā/ *sad, nah,* OE /ǣ/ *sæd,* /ɔ̄/ *neah,* OI /ā/ *sað, na-.*

Before high-front, Anglian OE has /ø̄/ when the root ends in a nasal. Before high-back, OE has /ā/ in roots ending in /w/, /ō/ in roots ending in a nasal, /ǣ/ otherwise; OI has /ō/ when the root ends in a nasal, /ɔ̄/ otherwise. In positions before neither high-front nor high-back, OE has /ɔ̄/ before original */h/, but /ǣ/ otherwise. For all of these correspondences, it is possible to establish a single protophoneme, which we will tentatively designate as */ē¹/ to distinguish it from the series which corresponds to Go. /ē/ in a very different manner:

Go. *her* 'here', *mes* 'table', *Krekos* 'Greeks', *fera* 'side', OHG /ia/ *hiar, mias, Kriahhi, fiara, wiara* 'wire', *liaz* 'he let', OS /ē ~ ī/ *her ~ hir, let ~ liet,* OE /ē ~ ī/ *her, mes - mys* (i.e. /mīs/), *Crecas, wir, let,* OI /ē ~ ī/ *her, virr, let.*

This set of correspondences is clearly distinct from the first set. The alternations /ē ~ ī/ in OS, OE, and OI do not seem to be reducible to any

type of environment (but see 1.3.3). For this set, we will tentatively posit a protophoneme */ē²/ to distinguish it from */ē¹/.

1.2.3 Gothic /ū/. All dialects other than Go. agree in a front variant [ȳ] in the high-front environment, with [ū] elsewhere, except that OI has a special reflex /ō/ before an original */h/:

(1) before high-front:

Go. *garuni* 'counsel', OHG /ȳ/ *giruni*, OS /ū/ = [ȳ] *giruni*, OE /ȳ/ *geryne*, OI /ȳ/ *ryne;*

(2) elsewhere:

Go. *hus* 'house', *þuhta* '(me) thought', OHG /ū/ *hus*, *duhta*, OS /ū/ *hus*, *thuhta*, OE /ū/ *hus*, *þuhte*, OI /ū/ *hus*, /ō/ *þotta*.

We may therefore tentatively posit a protophoneme */ū/ (but see 1.3.1).

1.2.4 Gothic /ō/. The other dialects have a front variant:

(1) before high-front:

Go. *sokjan* 'to seek', OHG /yø/ *suohhen*, OS /ō/ = [ō] *sokian*, OE /ō/ *soecan*, OI /ō/ *søkia;*

(2) elsewhere:

Go. *broþar* 'brother', OHG /uo/ *bruoder*, OS /ō/ *brođar*, OE /ō/ *broðor*, OI /ō/ *broðer*.

All dialects point to an original */ō/, including OHG, since early documents have ⟨o⟩ (Braune–Mitzka 1967: § 39).

1.2.5 Gothic /ā/. All dialects except OE, which has /ō/, agree with Go. /ā/ in cognate forms, although the others again have a front variant:

(1) before high-front:

Go. *fahiþ* 'he gets', *þahtedi* 'he thought (pret. opt.)', OHG /ǣ/ *fahit*, *dahti*, OS /ā/ = [ǣ] *fahid*, *thahti*, OE /ō/ *foehþ*, OI. /ǣ/ *fær*, *þætte;*

(2) elsewhere:

Go. *fahan* 'to get', *þahta* 'he thought', OHG /ā/ *fahan*, *dahta*, OS /ā/ *fahan*, *thahta*, OE /ō/ *fon*, *þohte*, OI /ā/ *fa*, *þatta*.

For these correlations, we will tentatively set up a protophoneme */ā/ (but see 1.3.1).

1.2.6. Gothic /ǣ/. This Go. vowel corresponds to both monophthongs and diphthongs in the other dialects:

(1) before high-front:

Go. *dailjan* 'to divide', *laisjan* 'to teach', OHG /ei/ *teilen*, /ē/ *leren*, OS /ǣ/ *delian*, *lerian*, OE /ǣ/ *dælan*, *læran*, OI /ei/ *deila* /ǣ/ *ætta* 'he owned (pret. opt.)' (cf. Go. *aihtedes* 'you owned');

(2) elsewhere:

Go. *stains* 'stone', *maiza* 'more', *aihta* 'he owned', OHG /ei/ *stein*, /ē/ *mero*, *eht* 'property', OS /ǣ/ *sten*, *mero*, *ehta*, OE /ā/ *stan*, *mara*, *ahte*, OI /ei/ *steinn*, *meire*, /ā/ *atta*, /ɔ/ *ǫrr* (Go. *airus*) 'messenger'.

OHG /ē/ occurs before /r, w/ and (Gmc.) /h/, and in final position. In OI, /ǣ, ɔ̄, ā/ occur before */h/ and (Gmc.) /r/ in the environments high-front, high-back, and elsewhere, respectively.

The priority of the vowel cluster over the corresponding monophthongs, as well as the phonemic shape of the cluster is demonstrated by Ru. *staina* (acc.), by the Go. spelling ⟨ai⟩, as well as by archaic ⟨ai⟩-spellings for later ⟨ei⟩ and ⟨e⟩ in OHG (Braune–Mitzka 1967: § 43–4). For this set of correspondences, we reconstruct the cluster */ai/ (see also 1.3.3).

1.2.7 Gothic /ɔ̄/. Both monophthongs and diphthongs are found in the other dialects:

(1) before high-front:

Go. *hlaupis* 'you (sg.) run', *hausjan* 'to hear', OHG /øy/ *loufis*, /ō/ *horen*, OS /ɔ̄/ = [œ̄] *hlopis*, *horian*, OE (West Saxon) /ȳ/ *hliepst*, *hieran*, OI /ey/ *hleypr*, *heyra*, /ǿ/ *fløia* 'to flee' (cf. Go. *þlauhs* 'flight');

(2) elsewhere:

Go. *hlaupan* 'to run', *þlauh* 'he fled', OHG /ou/ *loufan*, /ō/ *floh*, OS /ɔ̄/ *hlopan*, *floh*, OE /ā/ *hleapan*, *fleah*, OI /au/ *hlaupa*, /ǿ/ *flo*.

OHG /ō, ǿ/ occur before dental consonant and (Gmc.) /h/; OI /ō, ǿ/ before original */h/.

Again on the basis of Ru. *laukaʀ* 'leek', the Go. and OI ⟨au⟩-spellings, and archaic OHG ⟨au⟩ for later /ou, øy, ō, ǿ/ (see Braune–Mitzka 1967: § 45–6), this set can be traced to an original cluster */au/ (see also 1.3.2).

1.2.8 Gothic /ī/. The other dialects have monophthongs and diphthongs:

(1) before high-front:

Go. *biudis* 'you (sg.) command', OHG /iy/ *biutis*, OS /iu/ = [iy] *biudis*, OE /ȳ/ *bietst*, OI /ȳ/ *byðr;*

(2) before low:

Go. *biudan* 'to command', OHG /io/ *biotan*, OS /io/ *biodan*, OE /ȳ/ *beodan*, OI /jō/ *bioða;*

(3) elsewhere:

Go. *biuda* 'I command', OHG /iu/ *biutu*, OS /iu/ *biudu*, OE /ȳ/ *beode*, OI /jō/ *bioð* (cf. OSwed. *biuþ*, NWGmc. *leubu* 'dear' Opedal, Krause 1966: no. 76).

On the basis of Ru. ⟨eu⟩ and the same spelling in early OE (Campbell 1962: § 275) and early OHG (Braune–Mitzka 1967: § 47, Anm. 1), we can tentatively posit two clusters, */iu/ and */eu/ (see 1.3.2).

1.2.9 Preliminary inventory of long/tense vowel phonemes and vowel clusters. From the sets of correspondences between the dialects, we have established the tentative contrasts */ī, ē¹, ē², ā, ō, ū/ and */iu, eu, ai, au/. Just such a procedure led to the inventory of vowels and clusters found

in the neogrammarian handbooks (e.g. Wright 1962: § 64, and Braune–Mitzka 1967: § 24). These correspondences, however, actually represent raw data which must be subjected to further analysis with respect to the internal morphophonemic alternations in which they could participate before the actual system of the proto-language can be established. After this refinement has been accomplished (1.3), the distinctive features and phonetic realizations of the contrasts will be discussed (2).

1.3 Morphophonemic alternations

1.3.1 Long/tense vowels alternating with short/lax vowels + nasal. Among the morphemes with long/tense vowels, certain ones alternate with related forms containing a short/lax vowel followed by a nasal:

(1) tentative */ī/ (1.2.1): Go. *þeihan*, OHG *dihan*, OS *thihan*, OE *þeon* 'to thrive', OI *þettr* (< */þīht-/) 'thick', compared to OS *githungan*, OE *geþungen* 'excellent', OS *a-thengian* 'to carry out', OE *geþingan* 'to thrive';

(2) tentative */ū/ (1.2.3): Go. *þuhta*, OHG *duhta*, OS *thuhta*, OE *þuhte*, OI *þotta* (< */þūht-/) '(me) thought', compared to the present-tense forms Go. *þugkeiþ* /þunkīþ/, OHG *dunkit*, OS *thunkid*, OE *þyncþ*, OI *þykke* (< */þunk-/) '(me) thinks';

(3) tentative */ā/ (1.2.5): Go. *(fram-)gahts* 'entrance', OHG OS *fahan*, OE *fon*, OI *fa* 'to get', compared to Go. *gaggan* /gangan/ 'to go', OHG OS *gifangan*, OE *fangen*, OI *fangenn* 'got (past part.)'.

These alternations in related forms indicate that the long/tense vowels arose through lengthening upon loss of an original nasal before */h/, i.e. */īh/ < */inh/, */ūh/ < */unh/, and */āh/ < */anh/. In the case of */ī/ and */ū/, this origin merely reduces the incidence of these vowels in the proto-language, since there are other instances in which they do not derive from compensatory lengthening (see 1.3.3 and 4.1). With respect to */ā/, however, the situation is different, since this tentative phoneme occurs only before */h/ and always derives from lengthening upon the loss of a nasal, as can be seen from the OE reflexes /ō, ǭ/, which betray the nasality of their origin by being indistinguishable from */ē¹/ followed by a nasal (see 1.2.2). For PGmc., then, we must reconstruct the sequence */an/, which in late PGmc. was realized as [ãh] before */h/, and remove the tentative phoneme */ā/ from our inventory.

1.3.2 Gothic /ī – ō – u (ɔ)/. Table 3 presents the vowel alternations found in the second class of strong verbs in the various dialects. First of all, it will be noticed that in all forms with short/lax (monophthongal) vocalism in all the dialects, the very same alternations as those discussed in 1.1.2 are found within and between each of the dialects. It is possible, therefore, to reconstruct a single protoform for each:

1 pl. pret. ind.	3 sg. pret. opt.	past part.
*/bugum-/	*/bugī-/	*/bugan-/
*/tugum-/	*/tugī-/	*/tugan-/
*/budum-/	*/budī-/	*/budan-/.

All forms in the dialects are regular, except for Go. *tauhum*, *tauhi*, *tauhans*, in which original */g/ by Verner's law has been replaced by /h/ in analogy with the pres. and past sg., thereby requiring the root-vocalism /ɔ/ instead of /u/. OE *buge* has /u/ in place of expected */y/ in analogy with the pl. pret. ind. (the regular vowel is found in the preterit-present verb *deah*, *dugon*, opt. *dyge*, beside *duge*).

Turning our attention to the spelling of forms for the pres. ind. and the 3 sg. pret., it is striking that once again we are confronted with representations of familiar variants of */u/ in the second elements of the digraphs: Go. ⟨u⟩ (including before /h, hʋ, r/), OHG OS OI ⟨u ~ o⟩, OE ⟨o⟩. Even OE ⟨ie⟩ and ⟨ea⟩ come into focus when we note that (West Saxon) ⟨ie⟩ has a variant (non-West Saxon) ⟨io⟩, while a more archaic form of ⟨ea⟩ is ⟨æo⟩ (see Antonsen 1967a). For all forms with digraphic spellings, then, we can posit for the second element a protophoneme */u/, which must be identical with the */u/ found alone in the pret. pl., pret. opt., and pret. part. forms. The first elements of the digraphs also present familiar faces when it is noted that OHG ⟨ou⟩ varies with ⟨au⟩, and OE ⟨ea⟩ has the older form ⟨æo⟩. All the digraph spellings clearly reflect an older cluster */au/ in the pret. sg., and the /ō/ of OS finds counterparts in the contextual variant /ō/ of both OHG /ou/ and OI /au/. For the 3 sg. pret., we can reconstruct the protoforms: */baug-/, */tauh-/, */baud-/.

The present-tense forms bring us back to the problem of pre-Go. *[i ~ æ] and non-Go. *[i ~ e] (1.1.3). In Go., the absence of the low vowel before /h/ is evidence that ⟨iu⟩ no longer represented a cluster of autonomous */i/ + */u/, but a unit phoneme which developed to /ī/ through assimilation, just as */a/ + */i/ > /ǣ/, and */a/ + */u/ > /ō/. OHG OS ⟨iu⟩ occurs in two environments, before high-front, where we expect */i/ and */u/ = [y], i.e. *[iy], and before high-back, where again we expect */i/ in these dialects, as well as nonassimilated */u/, i.e. *[iu]. (That these clusters actually were differentiated is shown by reflexes in MHG dialects; see Braune–Mitzka 1967: § 49.) Before low, the distribution of *[i ~ e] and *[u ~ o ~ y] would seem to require OHG OS *⟨eo⟩. The appearance of ⟨io⟩ in this environment can only indicate that the first element of the cluster was determined by the original second element (i.e. */i/ before original */u/), while the second element was conditioned by the low vowel of the following syllable (i.e. PGmc. */eu/ before */-a/ > /eo/ = [ɣo] > /io/).

Table 3

	Present			Preterit			
	Infinitive	Indicative		Indicative		Optative	Participle
Before:	/-a/	1 sg. /-ū/	2 sg. /-i/	3 sg.	1 pl. /-u/	3 sg. /-ĭ/	/-a/
Go.	/ī/	/ī/	/ī/	/ō/	/u/	/u/	/u/
	biugan	*biuga*	*biugis*	*baug*	*bugum* /ɔ/	*bugi* /ɔ/	*bugans* /ɔ/
	tiuhan	*tiuha*	*tiuhis*	*tauh*	*tauhum*	*tauhi*	*tauhans*
OHG	/io/	/iu/	/iy/	/ou/	/u/	/y/	/o/
	biogan	*biugu*	*biugis*	*boug* /ō/	*bugum*	*bugi*	*gibogan*
	biotan	*biutu*	*biutis*	*bot*	*butum*	*buti*	*gibotan*
OS	/io/	/iu/	[iy]	/ō/	/u/	[y]	/o/
	biogan	*biugu*	*biugis*	*bog*	*bugun*	*bugi*	*gibogan*
OE	/ī̆/	(/ī̆/)	/ī/	/ō/	/u/	(/u/)	/o/
	beogan	(*beogo*)	*biehst*	*beag*	*bugon*	(*buge*)	*bogen*
OI	/jō/	(/ȳ/)	/ȳ/	/au/	/u/	/y/	/o/
	bioða (/jū/)	(*byð*)	*byðr*	*bauð* /ō/	*buðom*	*byðe*	*boðenn*
	(*biuga*)	(*byg*)	*bygr*	*bo*	*bugom*	*byge*	*bogenn*

Paralleling the development in OHG and OS, OI reflects an older *[iy] before high-front, which was subsequently monophthongized to /ȳ/ (cf. MHG ⟨iu⟩ = /ȳ/). In the case of the other two environments, however, the development is different in so far as we do not expect */i/ before high-back in this dialect and the first element of the cluster should reflect */e/ in this environment. The spellings ⟨iu⟩ and ⟨io⟩ do not contradict our expectations. If we keep in mind that in OI, */e/ before high-back occurs as /jɔ/, then it becomes evident that ⟨io⟩ = /jō/ is a contraction of */jɔ/ + */o/ before low vowels of the next syllable, while ⟨iu⟩ = /jū/ derives from */jɔ/ + */u/ in other environments. The alternation of /jō/ and /jū/ in comparable forms in OI and in the other Nordic dialects (e.g. OI *bioða* ~ OSw. *biuþa*) reveals levelings within paradigms which have disrupted the original distributional pattern.

In OE, ⟨ie ~ io⟩ (for older ⟨iu⟩) is found before high-front, reflecting pre-E */i/ + */u/, while ⟨eo⟩ (older ⟨eu⟩) represents pre-E */e/ + */u/ (see Antonsen 1967a). The occurence of ⟨eo⟩ for expected *⟨eu⟩ in the environment high-back is the result of leveling from forms with following low vowels.

The present-tense forms thus can be reduced to an alternation between */eu/ and */iu/, with the latter occurring only before high-front. This reconstruction is forcefully borne out by the Ru. forms *niujila* (Darum, Krause 1966: no. 104), but *leubu* (Opedal, traditionally read as **liubu*,

thus also Krause 1966: no. 76, because of the failure to recognize the bind-rune *eu* actually used in the inscription). All forms can therefore be reconstructed with an original */eu/:

*/beugan-/	*/beugū/	*/beugis-/
*/teuhan-/	*/teuhū/	*/teuhis-/
*/beudan-/	*/beudū/	*/beudis-/.

1.3.3 Gothic /ī ~ ǣ ~ i (æ)/. An analysis of the forms in Table 4 according to the same procedure followed in 1.3.2 permits us to reduce the consistently monophthongal forms to:

Table 4

	Present			Preterite			
	Infinitive	Indicative		Indicative		Optative	Participle
Before:	/-a/	1 sg. /-ū/	2 sg. /-i/	3 sg.	1 pl. /-u/	3 sg. /-ī/	/-a/
Go.	/ī/	/ī/	/ī/	/ǣ/	/i/	/i/	/i/
	beidan	*beida*	*beidis*	*baiþ*	*bidum*	*bidi*	*bidans*
					/æ/	/æ/	/æ/
	leihvan	*leihva*	*leihvis*	*laihv*	*laihvum*	*laihvi*	*laihvans*
OHG	/ī/	/ī/	/ī/	/ei/	/i/	/i/	/i/
	bitan	*bitu*	*bitis*	*beit*	*bitum*	*biti*	*gibitan*
				/ē/			
	lihan	*lihu*	*lihis*	*leh*	*liwum*	*liwi*	*giliwan*
OS	/ī/	/ī/	/ī/	/ǣ/	/i/	/i/	/i/
	bidan	*bidu*	*bidis*	*bed*	*bidun*	*bidi*	*gibidan*
OE	/ī/	/ī/	/ī/	/ā/	/ɯ/	/i/	/i/
	bidan	*bido*	*bitst*	*bad*	*biodun*	*bide*	*biden*
OI	/ī/	/ī/	/ī/	/ei/	/i/	/i/	/e/
	biða	*bið*	*biðr*	*beið*	*biðom*	*biðe*	*beðenn*
				/ē/			/i/
	stiga	*stig*	*stigr*	*ste*	*stigom*	*stige*	*stigenn*

*/bidum-/	*/bidī-/	*/bidan-/
*/ligwum-/	*/ligwī-/	*/ligwan-/
*/stigum-/	*/stigī-/	*/stigan-/.

Here, too, Go. has replaced */g/ by /h/ and therefore has /æ/ for */i/. In the past part., we should expect OHG OS OE OI /e/ before the low vowel of the suffix, yet we find /i/ here, except in OI *beðenn*, so we must consider the forms with /i/ to be reformations (see Hock 1972).

Similarly, the pret. sg. forms can be traced to: */baid-/, */laihw-/, */staig-/.

The root vocalism of the present-tense forms seems to present a very simple picture in which /ī/ is found in all dialects with the exception of

the so-called contract forms of OE and OI (see 1.2.1), so that /ī/ might be posited. However, the parallelism between this set of alternations and that of the second class (1.3.2) is too striking to be accidental: */i/ : */u/, */ai/ : */au/, so that */ī/ : */eu/ must reflect an older */ei/ : */eu/. The assumption of */ei/ as an older form of */ī/ in this series is supported by evidence from IE (see 4.1), as well as internal Gmc. evidence, including late PGmc. */ē/ (see below) and the Go. spelling ⟨ei⟩, which like ⟨ai⟩ for /ǣ/ and ⟨au⟩ for /ɔ̄/, as well as ⟨iu⟩ for /i/, is best explained as an inherited spelling. The generally accepted explanation that ⟨ei⟩ is patterned after Gk. ει is contradicted by the fact that ει was by no means the only, or even preponderant, Gk. spelling for /ī/, whereas all the Go. digraphs can be derived on the basis of internal Go. developments. For the present-tense stems of this class, then, we obtain the protoforms:

*/beidan-/	*/beidū/	*/beidis-/
*/leihwan-/	*/leihwū/	*/leihwis-/
*/steigan-/	*/steigū/	*/steigis-/.

In addition to the alternation */ei ~ ai ~ i/ discussed above, there is another, rather limited set of forms which points to a relationship between */ē²/ and */ei/, as in Go. *her* (OHG *hiar*) 'here', *hita* 'this moment', *hidre* 'hither', and in OHG *stiaga* 'stairs', *steg* (< */stigaz/) 'foot-path', *stigan* /stīgan/ 'to climb'. The origin of */ē²/ remains problematical. Attempts have been made to derive it through the monophthongization of a diphthong arising in reduplicated forms upon the loss of medial */h/, from Lat. loanwords (e.g. Go. *mes* 'table'), and from the PIE cluster */ēy/ or */eXy/ (Lüdtke 1957; Lehmann 1952:66–73). To my mind the most plausible explanation advanced so far is that by van Coetsem (1956 and 1970:55–8), who sees in */ē²/ a reflex of PIE */ey/, PGmc. */ei/ before a low vowel (note that the native Go. words have a following /r/). This theory would account for the alternations between */ē²/ and /i/ as full grade and zero grade, respectively, and permit us to explain OS *her* ~ *hir* (/hēr ~ hīr/), OHG *stiaga* ~ *stigan* (/stīgan/), etc., as the result of different leveling processes. While I am cognizant of the problems which even this theory leaves, the little evidence available to us nevertheless seems to favor it. I therefore assume that PGmc. contained only */ē¹/ and not an additional */ē²/, which represents a later development from ePGmc. */ei/.

1.3.4 For PGmc., we may posit the long/tense contrasts */ī, ē¹, ō, ū/, and the clusters */ei, eu, ai, au/.

2. Distinctive features of the root vowel phonemes

So far, we have established only the vocalic contrasts in root syllables and assigned to each a tentative designation. To establish the phonetic realizations and the distinctive features of each protophoneme, we have several points of departure, including the testimony of foreign loanwords and of Gmc. words borrowed into other languages. This evidence is often ambiguous, however, so that the evidence provided by later developments within descendant languages must be given primary consideration. In this regard, Go. presents special problems, since it has left no descendants. The main burden must therefore be borne by the NGmc. and WGmc. languages.

Although the precise phonetic nature of the contrast long/tense versus short/lax cannot be determined, there can be no doubt that such a distinction existed in PGmc., as is demonstrated by the following items:

*/ī/ ≠ */i/: Go. *leiþu* 'fruit wine (acc.)' : *liþu* 'member (acc.)', OHG *līd : lid*, OS *līd : liđ*, OE *līð : lið*, OI *līþ : liþ* (acc.);

*/ū/ ≠ */u/: Go. *fūls* 'foul' : *fula* 'foal', OHG OS *fūl : folo*, OE *fūl : fola*, OI *fūll : fole* (the masc. nom. sg. of the weak declension of the adjectives would give perfect minimal pairs);

*/ē¹/ ≠ */e/: Go. *(anda-)sēt* 'abomination' : *sitls* 'seat', MHG *sāze* 'ambush' : *sez* 'seat', OE *sǣt : set*, OI *sāt : set*.

We may therefore confidently divide the vowel phonemes into two subsystems.

2.1 Short/lax subsystem

As can be seen from the reflexes in the later dialects (1.1), front variants of */u, a/ (*[y, æ]) developed in the environment high-front, back variants of */i, e, a/ (*[ɯ, ɣ, ɒ]) arose in the environment high-back, a low variant of */u/ (*[o]) was produced before low vowels, and */a/ in combined high-back and high-front environments produced still a third variant (*[ə]) which may be characterized as higher central. From these variations, it is possible to conclude that the distinction spread : rounded (but not front : back) was the feature which set off */u/ from both */i/ and */e/, since the front variant of */u/ = *[y] did not coalesce with */i/, nor the back variant of */i/ = *[ɯ] with */u/, and the lower variant of */u/ = *[o] did not coalesce with the back variant of */e/ = *[ɣ]. While */u/ = *[u, y] could be adequately characterized by the single feature [+ rounded], */i/ = *[i, ɯ] and */e/ = *[e, ɣ] shared the feature [— rounded] and thus must have differed only in tongue height. Since */a/ = *[a, æ, ɔ, ɒ] was distinctively neither front nor back, nor

spread nor rounded, it could have contrasted with the other short/lax phonemes only in being [+ low]. We therefore have a system in which [+ low] contrasts with all vowels which are [— low]; the latter are divided into [+ rounded] and [— rounded], and these are then distinguished by tongue-height, which must be [+ high] vs. [— high] (see Antonsen 1967b: 26, and 1967a: 78; Benediktsson 1967: 176):

	*/a/	*/u/	*/i/	*/e/
Low	+	—	—	—
Rounded		+	—	—
High			+	—

That */i/ and */e/ contrasted by virtue of only a single feature is clear from the later neutralization of this contrast in the environments affecting tongue-height, i.e. high-front, low, and before nasal clusters. In the form of a vowel diagram, the relationships can be represented as:

	Spread		Rounded	Spread		Rounded
High	*/i/		*/u/	*[i ~ ɯ]		*[y ~ u]
	*/e/			*[e ~ ɣ]	*[ɵ]	*[o]
Low		*/a/			*[æ ~ a ~ ɒ]	

The characterization of */e/ as [– low, – rounded, – high] accords with the fact that in nonroot syllables, this is the only vowel which does not cause umlaut assimilations in a preceding root syllable.

Confirmation of the contrasts can be found in the manner in which early Lat. loanwords are treated in Gmc. (Kluge 1897: 351):

(1) Lat. /u/ = Gmc. [+ rounded]: [u] OE *must* < *mustum;* [o] OHG *stophon* < *stuppa;* [y] OE *pytt*, OHG *pfuzzi* < *puteus;*

(2) Lat. /o/ = Gmc. [+ rounded]: [u] Go. OE *pund*, OHG *phunt* < *pondō;* [o] OE *post*, OHG *pfost* < *postem;* [y] OE *mynet*, OHG *muniz(za)* < *monēta;*

(3) Lat. /a/ = Gmc. [+ low]: [a] Go. *arka*, OHG *archa*, OE *earc* < *arca;* [æ] OHG *pfenih* < *panīcum;* [ɒ]: OI *kǫttr* < *cattus;*

(4) Lat. /i/ = Gmc. [– low, – rounded]: [e] OHG *senaf* < *sināpis;*

(5) Lat. /e/ = Gmc. [– low, – rounded]: [i] OE *trims*, OHG *trimissa* < *tremissis.*

2.2 Long/tense subsystem

The reflexes of */ē¹/ in OHG, OS, (West Saxon) OE, and OI (1.2.2) point to an original low vowel, as does the evidence in nonroot syllables (3) and from loanwords: Lat. /ē/ appears as /ī/, e.g. *vēlum* > OHG

wil(-lahhan). The feature [+ low] can also be assigned to */ō/ on the basis of loanword evidence:

(1) Lat. /ō/ = Gmc. [– low]: [ū] OHG OS *Ruma* < *Rōma;*

(2) Lat. /ā/ = Gmc. [+ low]: [ɔ̄] Go. *Rumoneis* < *Rōmāni;*

(3) Gmc. [+ low] = Lat. /ā/: [ɔ̄] OHG *Buohhunna* = Lat. *Silva Bācenis* (see Kluge 1897:356, and van Coetsem 1970:58).

Further verification is found in the effect of */ō/ in nonroot syllables on the vocalism of a preceding root (3) and in the PIE origins (see 4.1). Since these two protophonemes can be characterized as low vowels, a more appropriate designation for */ē¹/ would be */ǣ/, and for */ō/ would be */ɔ̄/. Later reflexes leave no doubt that the distinction between */ǣ/ and */ɔ̄/ was one of lip-rounding, since the front variant of */ɔ̄/ remained distinct from */ǣ/, as did the back variant of */ǣ/ from */ɔ̄/. Similarly, */ī/ and */ū/ contrasted by being spread vs. rounded, and they differed from */ǣ/ and */ɔ̄/ by being [– low]. The contrasts in this subsystem were therefore:

	*/ī/	*/ū/	*/ǣ/	*/ɔ̄/
Long/tense	+	+	+	+
Low	—	—	+	+
Rounded	—	+	—	+

The short/lax and long/tense subsystems were thus asymmetrical with respect to one-another:

	Spread	Rounded	Spread	Rounded
High	*/i/ */e/	*/u/	*/ī/	*/ū/
Low	*/a/		*/ǣ/	*/ɔ̄/

This analysis of the PGmc. vowel system is most cogently supported by the vowel graphs of the older fuþark, where six graphemes originally represented the six qualitative distinctions and ignored the feature long/tense (see Antonsen 1970:316–7):

Vocalic runes:	ᚨ	ᛟ	ᛇ	ᚢ	ᛁ	ᛗ
Low	+	+	+	—	—	—
Rounded		+	—	+	—	—
High					+	—
Protophonemes:	*/a	ɔ̄	ǣ	ŭ	ĭ	e/.

3. Phonemic contrasts in nonroot syllables

A detailed presentation of the reconstruction of the original contrasts in derivational and inflectional syllables would require more space than is at my disposal. A summary presentation of the syllabics recoverable on the basis of internal Gmc. evidence, along with some indication of the nature of that evidence, will therefore have to suffice.

PGmc. */-i/: NWGmc. *-gast-i-ʀ*, OE *g(i)est*, OI *gest-r* 'guest', Go. *gast-i-m*, OHG *gest-i-m*, OS *gest-i-un* (dat. pl.). Note /e/ < */a/ in the root syllable.

PGmc. */-e/: OHG *bind-e-t* 'you (pl.) bind'.

PGmc. */-a/: NWGmc. *held-a-ʀ* 'Held (prop. name)', OI *hialm-r* (/ja/ < */e/ before */-a/), OHG OS OE *helm* 'helmet'; NWGmc. *horn-a* (acc.), OHG OS OE OI *horn* 'horn' (/o/ < */u/ before */-a/).

PGmc. */-u/: NWGmc. *mag-u* (acc.), Go. *mag-u-s*, OS *mag-u*, OE *mag-o*, OI *mǫg-r* (/ɔ/ < */a/ before */-u/) 'boy'; Go. *skild-u* (acc.), OI *skiǫld-r* (/jɔ/ < */e/ before */-u/).

PGmc. */-ī/: Go. *bund-ei-s*, OHG *bunt-i-s*, OS *bund-i-s*, OI *bynd-e-r* (/y/ < */u/ before */-ī/) 'you (sg.) might bind'.

PGmc. */-ǣ/: NWGmc. *tawid-e* 'he made', Go. *stauid-e-s* 'you (sg.) judged', OHG *folg-e-n* (/o/ < */u/ before */-ǣ/) 'to follow'.

PGmc. */-ō/: NWGmc. *tawid-o* 'I made', *run-o-ʀ* 'runes (acc.)', Go. *gib-o-m* 'gifts (dat.)', OHG *kor-o-n* (/o/ < */u/ before */-ō/) 'to test'.

PGmc. */-ū/: NWGmc. *leub-u* 'dear (fem. nom. sg.)', OHG OS *gib-u* 'I give', OE *meot-u* 'I mete', OI *biǫrg-o-mk* (/jɔ/ < */e/ before */-ū/) 'I save myself'; but see 4.3.

PGmc. */-ai/: NWGmc. *hah-ai* 'steed (dat.)', Go. *anst-ai* 'favor (dat.)'; but see 4.3.

PGmc. */-au/: NWGmc. *as-au* 'god (dat.)', Go. *sun-au* 'son (dat.)'; but see 4.3.

PGmc. */-iu/: NWGmc. *kunimud-iu* 'Kunimund (dat.)', OHG *sun-iu* 'son (dat.)'; but see 4.3.

From this short resumé, it will be seen that those syllables which can be reconstructed from Gmc. evidence alone have already been encountered in the root syllables (which is also true of the additional ones recoverable through comparison with IE evidence; see 4.3). In ePGmc., the divergent development in root and nonroot syllables characteristic of later stages had not yet begun.

4. Proto-Germanic and Proto-Indo-European

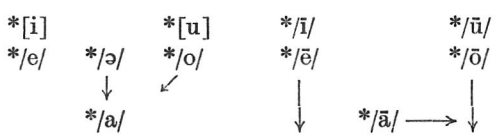
Inasmuch as Gmc. is a branch of the larger IE family, it is possible to verify and refine the syllabics reconstructed for PGmc. by comparing them with those reconstructed for PIE. The syllabics of (late) PIE are usually presented as in the diagram:

*[i]		*[u]	*/ī/		*/ū/	*[r̥, l̥, m̥, n̥, ŋ̥]
*/e/	*/ə/	*/o/	*/ē/		*/ō/	
	*/a/			*/ā/		

in which *[i, u, r̥, l̥, m̥, n̥, ŋ̥] represent syllabic allophones of the resonant phonemes */y, w, r, l, m, n/ in consonantal environments (i.e. C_C, #_C, or C_#). When preceded by a long syllable (i.e. CVCC or CV̄C) and followed by a vowel, these resonant phonemes occurred in the form of syllabic + nonsyllabic: *[ij, uw, r̥r, l̥l, m̥m, n̥n]. Reflexes of this allophonic variation are also found in Gmc. (see 4.2).

4.1 Proto-Germanic and Proto-Indo-European correspondences

The cognate forms in Table 5 illustrate the correlations between ePGmc. and PIE. PIE */a, o, ə/ appear as PGmc. */a/, while PIE */ā, ō/ are reflected in PGmc. */ō/, and PIE */ē/ has been lowered to */ǣ/ (on *[i] and *[u], see 4.2). These developments may be represented schematically as



Various attempts (e.g. van Coetsem 1970:42–4, Benediktsson 1967: 175) have been made to describe intermediate stages in these developments by way of single-feature changes, whereby symmetrical four-phoneme systems evolved in the pattern:

*[i]	*[u]	*/ī/	*/ū/
*/e/	*/å/	*/ē/	*/å̄/.

The absence of historical guideposts between the two reconstructed stages makes it impossible to determine whether the changes occurred in feature-by-feature steps (which is quite likely, although by which features and in which order remains a moot point), or in one-step shifts (e.g. through adaptation by an originally non-Indo-European population). The assumption that PIE */a, o, ə/ coalesced in */å/, the short/lax counterpart of */å̄/ < PIE */ā, ō/, is therefore highly speculative. For early PGmc., one may arbitrarily assume that no change in the PIE

vowel phonemes had yet occurred, or that all of the coalescences, or only some of them, had already taken place. In the following (see Table 5), I assume that they had all occurred, and that *[i] and *[u] were phonemes (through 'system balance'), although *[r̥, l̥, m̥, n̥, ŋ̊] had not yet become clusters (see 4.2).

Table 5

Early Proto-Germanic		Proto-Indo-European (pre-Germanic)
*/i/:	*/widuz/ 'wood'	*[widʰus]
*/e/:	*/meduz/ 'mead'	*[medʰus]
*/a/:	*/fanhanan/ 'to catch'	*[paŋkonom]
	*/bande/ 'he bound'	*[bʰondʰe]
	*/fadǣr/ 'father'	*[pətēr]
*/u/:	*/bugme/ 'we bent'	*[bʰugʰme]
*/ī/:	*/swīnan/ 'swine'	*[swīnom]
*/ǣ/:	*/bǣdme/ 'we bade'	*[bʰēdʰm̥me]
*/ō/:	*/flōduz/ 'flood'	*[plōtus]
	*/mōdǣr/ 'mother'	*[mātēr]
*/ū/:	*/mūs/ 'mouse'	*[mūs]
*/ei/:	*/steiganan/ 'to climb'	*[steigʰonom]
*/ai/:	*/gaitz/ 'goat'	*[gʰaids]
	*/staiga/ 'I climbed'	*[stoigʰa]
*/eu/:	*/beugesi/ 'you (sg.) bend'	*[bʰeugʰesi]
*/au/:	*/aukanan/ 'to increase'	*[augonom]
	*/bauge/ 'he bent'	*[bʰougʰe]

4.2 Syllabic resonants

The PIE syllabic resonants *[i, u, r̥, l̥, m̥, n̥, ŋ̊] appear in lPGmc. as */i, u, ur, ul, um, un/: *[bʰidn̥t] > */bitun/ 'they bit', *[bʰugʰn̥t] > */bugun/ 'they bent', *[pl̥nos] > */fullaz/ 'full', *[kr̥nom] > */hurnan/ 'horn', *[gʷm̥tis] > */kwumdiz/ 'arrival', *[mn̥tis] > */mundiz/ 'memory', *[tŋ̊ktus] > */þunhtuz/ > */þūhtuz/ 'conscience'. In suffixes, there are also reflexes of the variation between the nonsyllabic and the syllabic + nonsyllabic allophones which correlate with the quantity of the preceding syllable: PIE *[kor-je-so] > lPGmc. */har-je-s/ > Go. *harjis* 'army (gen.)', but PIE *[kerdʰ-ije-so] > lPGmc. */hird-ije-s/ > Go. *hairdeis* 'shepherd'; PIE *[bʰ-ēdʰ-m̥me] > lPGmc. */bǣd-um/ > Go. *bedum* 'we asked', but PIE *[pat-mo-s] > lPGmc. */faþ-ma-z/ > OE *fæþm* 'embrace'.

The phonemic status of the PGmc. reflexes has been the subject of some debate. Lehmann (1955; 1961; 1968a) has argued for the retention of the allophonic status into (early) PGmc. on the basis of such forms as Go. *kunþjis* (not **kunþeis*) < PGmc. */knþ-je-s/ (not */kunþ-ije-s/) 'knowledge (gen.)', in which the suffix is regular after a short root, as

well as on the basis of metrical evidence for original monosyllabic value of forms like OE *wundor* < PGmc. */wndran/ = *[wn̥dran] 'wonder', but disyllabic for OE *tacen* < PGmc. */taiknan/ = *[taikn̥nan] 'token'. Marchand (1956), on the other hand, disputed the allophonic nature of these alternations in PGmc. and saw in them instead fossilized morphophonemic alternations (see Will 1970).

One factor which seems to have been overlooked in the discussion is the fact that even in late PIE, the alternations *[i ~ ij] and *[u ~ uw] were probably no longer merely allophonic, but rather morphophonemic, since *[i] and *[u] most likely had acquired phonemic status through 'system balance' upon the rise of */ī/ and */ū/ from earlier */yH, wH/, just as this was surely the case for NWGmc. /o/ (Kuryłowicz 1952), for OE /ɯ, ɣ, ə/ (Antonsen 1967a), and for Go. /æ, ɔ/ (D'Alquen 1967). One indication of this early phonemicization is provided by the dat. (PIE loc. sg. of Gmc. *i*-stems, which must derive from PIE */-ey + y/ (for NWGmc. /-ī/) or */-oy + y/ (for Go. *-ai*). These sequences were impossible according to the Sievers-Edgerton pattern for the distribution of syllabic and nonsyllabic allophones of the resonant phonemes, which permitted only *[ij], but not *[ji]. Phonemicization of *[i] through system balance, however, would have permitted a lPIE */-ey + i/ and */-oy + i/, the sequences necessary to produce PGmc. */-iji/ > NWGmc. */-ī/ and PGmc. */-aji/ > Go. /-æ/ *-ai*. The older theory deriving both forms of this ending from a supposed trimoric PIE ending */-ēy/ (which in turn supposedly derived from a still older */-ey + y/) is untenable (see Lane 1963 and Antonsen 1969–70: § 6).

However one wishes to regard the status of *[i ~ ij] and *[u ~ uw], the evidence of syllable quantity does indeed point to the retention of */r, l, m, n/ = *[r̥, l̥, m̥, n̥, n̪ ~ r̥r, l̥l, m̥m, n̥n] into ePGmc., since only on such an assumption can the syllabic alternations observable in Gmc. be explained. That the syllabics were no longer allophones of */r, l, m, n/ in lPGmc., but had already become the phonemic clusters */ur, ul, um, un/ is clear from the development of umlaut variants of the new */u/ in the same manner as */u/ < PIE *[u]: cf. OHG *fullen* /fyllen/ 'to fill' and *follon* 'to fulfill' (< PIE */pln-/).

4.3 Nonroot syllabics

As was pointed out above, ePGmc. displayed the same vocalism in nonroot as in root syllables. The laws of final syllables compel us to assume that all of the syllabics found in PIE were retained (in appropriate reflexes) into ePGmc., e.g. PIE */bʰerete/ > ePGmc. */berede/ > OHG *beret* with PIE */t/ preserved because it was not in

final position at the time of the loss of final PIE */t/ in */bʰeroyt/ > OHG *bere*. Further, the change of PIE */e/ in nonroot syllables to PGmc. */i/ occurred only under certain conditions. It was not, as is so often assumed, an unconditioned change (cf. OHG *beret* < PGmc. */berede/ < PIE */bʰerete/, OI *falleþ* < PGmc. */fallede/ < PIE */pˢ⁽ʰ⁾olnete/, with no evidence that there ever was an */i/ in these forms). One of these conditions was its presence before final Gmc. */z/, another its position before a high vowel (Antonsen 1969–70:59). A form like Go. *sunjus* < PIE *[sun-ew-es] presupposes first the voicing of final */s/, then the change of third-syllable */e/ to */i/, and only then the change of medial */e/ to */i/. Therefore, we must assume that with the exception of the coalescences of */a, o, ə/ > */a/, of */ā, ō/ > */ō/, and the lowering of */ē/ > */ǣ/, the vocalism of the PIE nonroot syllables survived unchanged into ePGmc. (Lehmann 1953). On this basis, then, we can further refine and expand the presentation given in 3:

lPGmc. */-ū/ < ePGmc. */-ō/ finally and before a high vowel with or without an intervening */n/: NWGmc. *leubu* < ePGmc. */leubō/ < PIE *[leubʰ-ā]; OHG *zungun* < ePGmc. */tngōni/ < pre-Gmc. *[dn̥g-ōn-i]; OHG *gebu* < ePGmc. */gebōi/ < PIE *[gʰebʰ-ā-i];

lPGmc. */-ai/ in final position < ePGmc. */-aji/: Go. *-dedai* < ePGmc. */dǣdaji/ < PIE *[dʰē-toj-i] (cf. Go. *daga* < ePGmc. */dagai/ < PIE *[dʰogʰ-o-j]);

lPGmc. */-au/ in final position < ePGmc. */-awi/: Go. *sunau* < ePGmc. */sunawi/ < PIE *[sun-ow-i];

lPGmc. */-iu/ in final position < ePGmc. */-ewi/: OHG *suniu* < ePGmc. */sunewi/ < PIE *[sun-ew-i].

5. Conclusion

PGmc., like all languages known to us, underwent changes during the course of its history. The vocalic system of ePGmc. showed no differentiation between root and nonroot syllables and none of the vowel assimilations (umlaut) characteristic of the root syllables in the later stage. Like PIE, ePGmc. had syllabic allophones of the resonant phonemes */r, l, m, n/, but most likely it differed from its parent in already having lost the distinctions between */a, o, ə/, on the one hand, and */ā, ō/, on the other, and having lowered */ē/ > */ǣ/ (cf. Makaev 1961:61–2, 67):

Early Proto-Germanic vocalic system

*/i/	*/u/	*/ī/	*/ū/	*[r̥, l̥, m̥, n̥, n̄]	
*/e/				*/ei/	*/eu/
*/a/		*/ǣ/	*/ō/	*/ai/	*/au/

LPGmc. presents different developments in root and nonroot syllables and vowel-assimilation allophones (umlaut) in the root, which were preceded by the conversion of the syllabic resonants into the clusters */ur, ul, um, un/. The number of phonemes increased through the appearance of a new */ē/ in root syllables only. The distribution of the vowel phonemes was altered by the change of unstressed */-ai/ > */-ǣ/, */-au/ > */-ō/ (and in certain environments) */-e/ > */-i/ and */-ō/ > */-ū/, by the loss of final vowels in third syllables, as well as by the *i*-umlaut of stressed */e/ > */i/ and the *a*-umlaut of stressed */i/ > */e/:

Late Proto-Germanic vocalic system

*/i/		*/u/	*/ī/	*/ū/		*/iu/
*/e/			*/ē/			*/eu/
	*/a/		*/ǣ/	*/ō/	*/ai/	*/au/

In addition to the umlauts identifiable through phonemic shifts, i.e. */e/ > */i/, */ei/ > */ī/, */i/ > */e/, */ei/ > */ē/, we can posit for this stage the presence of the nondistinctive variants which are reflected as umlauted phonemes in the later dialects (see Antonsen 1965:23–5). Supposed evidence for the absence of such nondistinctive variants in Go. (Wienold 1967), and therefore also in lPGmc., is based on a misconception of the umlaut process and of the distinctive features of the PGmc. vowel system. The supposed change of Go. /ō/ > /ū/ before high-front, which Wienold discusses and rightly rejects, has no parallel in the other Gmc. dialects, in all of which PGmc. */ō/ appears in a *front* (not high) variant in original high-front environments (see 1.2.4). In Go., such variants would have remained undesignated in the writing system, since the supposed loss of the conditioning factor in forms like *gasts* (< PGmc. */gastiz/) and *ansts* (< PGmc. */anstiz/) is the result of morphological restructuring and not of a regular phonological development (see Antonsen 1969–70:68–70). On the other hand, the presence of /ē/ in Go. *her*, *fera*, corresponding to OHG *hiar*, *fiara*, etc., could be cited as evidence for umlaut in pre-Go.

The Proto-Germanic Non-syllabics (Consonants)*

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Outline

1. Paradigmatic structure 142
1.1 The Proto-Germanic consonant system 142
1.2 The reconstruction of the Proto-Germanic system 144
1.2.1 The evidence of Gothic 144
1.2.2 The evidence of Runic Norse 147
1.2.3 The evidence of Old Icelandic 150
1.2.4 The evidence of Old English. 152
1.2.5 The evidence of Old Frisian 155
1.2.6 The evidence of Old Saxon 158
1.2.7 The evidence of Old High German 160
1.3 Proto-Germanic and Proto-Indo-European 162
2. Syntagmatic structure 166
2.1 Initial consonants 166
2.2 Non-initial consonants 167
2.3 Positional allophones 170

* The term 'consonant' is here used to include not only stops, fricatives (including sibilants), nasals, liquids, but also the semivowels /w/ and /j/.

1. Paradigmatic structure

1.1 The Proto-Germanic consonant system. PGmc. seems to have had the following system of consonants:

		Labial	Dental	Velar	Labiovelar ?
Obstruents	Vl.: Stop ≠ Fric.	p ≠ f	t ≠ þ	k ≠ x~h	k^w ≠ x^w~h^w
	Vd.: Stop ~ Fric.	b ~ ƀ	d ~ ð	g ~ g	(g^w ~ g^w)
	Vl.: Sibilant		s		
	Vd.: Sibilant		z		
Resonants	Nasal:	m	n	~ ŋ	
	Liquid:		l, r		
	Semivowel	w		j	

Note. The symbols [f] and [ƀ] are used to represent consonants that were composed of the features Voiceless, Labial, Fricative (for [f]) and Voiced, Labial, Fricative (for [ƀ]). Though historical and comparative evidence justifies the assumption that these two consonants were Labial, it does not usually permit us to determine such phonetic details as whether they were bilabial or labiodental.

Though a full discussion of syntagmatic structure will be postponed until section 2, we shall in the present section note (a) four positions in which these consonants occurred, and (b) the allophones which they showed in these positions. The four positions are: (1) word-initially before vowel, (2) word-medially between vowels doubly (or long), (3) word-medially between vowels singly (or short), and (4) word-finally after vowel. With the omission of the doubtful labiovelars, the allophones of these consonants in these four positions were as follows:

p-	-pp-	-p-	-p	t-	-tt-	-t-	-t	k-	-kk-	-k-	-k
f-	-ff-	-f-	-f	þ-	-þþ-	-þ-	-þ	h-	-xx-	-x-	-x
b-	-bb-	-ƀ-	-ƀ	d-	-dd-	-ð-	-ð	g-	-gg-	-g-	-g
				s-	-ss-	-s-	-s				
				–	–	-z-	-z				
m-	-mm-	-m-	-m	n-	-nn-	-n-	-n				
				l-	-ll-	-l-	-l				
				r-	-rr-	-r-	-r				
w-	-ww-	-w-	-w					j-	-jj-	-j-	–

Long consonants. All consonants except /z/ and the doubtful labiovelars apparently occurred intervocalically both short and long. The evidence for long resonants ([mm nn ll rr ww jj]) and the long sibilant

[ss] is beyond question; all the oldest Gmc. languages provide ample support for these reconstructions. The evidence for the remaining long obstruents ([pp ff bb tt þþ dd kk xx gg]), on the other hand, is fragmentary and inconsistent. Nevertheless, an examination of the comparative evidence as collected especially in Martinet 1937 justifies the assumption that these long consonants must also be reconstructed for PGmc.

OBSTRUENTS. These showed a primary opposition Voiceless ÷ Voiced: labial /p, f/ ÷ /b ~ ƀ/, dental /t, þ/ ÷ /d ~ ð/, velar /k, x ~ h/ ÷ /g ~ g/, sibilant /s/ ÷ /z/; and, among the non-sibilants, a secondary opposition Stop ÷ Fricative which was phonemic among the voiceless obstruents: /p/ ÷ /f/, /t/ ÷ /þ/, /k/ ÷ /x ~ h/; but allophonic among the voiced obstruents: /b ~ ƀ/, /d ~ ð/, /g ~ g/.

VELARS. These seem to have differed in two respects from the other non-sibilant obstruents. First, the comparative evidence suggests that labial b/ ~ ƀ/ and dental /d ~ ð/ were stops initially, i.e. [b-] and [d-]; but that velar /g ~ g/ was a fricative initially, i.e. [g-]. Though it became a stop in some Gmc. languages, either in some or all positions, it still remains a fricative in some modern Gmc. languages, e.g. in all of modern Netherlandic and in part of LGer. Second, PGmc. /f/ and /þ/ seem to have had the same allophones in all positions, respectively [f] and [þ]. PGmc. /x ~ h/, on the other hand, seems to have been [x] in most positions, but [h] word-initially (both before vowel and before the resonants /n l r/), perhaps also word-medially before vowel (i.e. [-h-] rather than the [-x-] noted above). The evidence of the modern Gmc. languages suggests that this [h] was not a true 'velar' but rather a non-localized cavity-friction consonant, like the initial [h-] of the modern Gmc. languages.

NASALS. Comparative evidence suggests that PGmc. /n ~ ŋ/ was dental [n] in most environments, but velar [ŋ] before the velars [k] and [g].

LABIOVELARS. The only uncertain elements in the system of PGmc. consonants noted above are the labiovelars: the voiceless stop /k^w/, the voiceless fricative /x^w ~ h^w/, and the voiced stop-fricative /g^w ~ g^w/. Reconstructing downwards from PIE, we would expect to find all three of these labiovelars (see 1.3). Reconstructing upwards from the oldest Gmc. languages, however, we find more or less clear evidence for /k^w/ and /x^w ~ h^w/ only in Go.; the other languages give evidence only for the clusters /kw/ and /xw ~ hw/. And we find no clear evidence at all, in any of the oldest Gmc. languages, for /g^w ~ g^w/.

1.2 The reconstruction of the Proto-Germanic system

In this section we shall attempt to show that the consonant system assumed above for PGmc. is necessary and sufficient to account by regular phonetic change for the consonant systems of the seven oldest Gmc. languages: Gothic, (early) Runic Norse, Old Icelandic, Old English, Old Frisian, Old Saxon, and Old High German. In each instance we shall begin by presenting the consonant system of the language: first the system as such, then the distribution of phonemes and allophones initially before vowel, medially (short and long) between vowels, and finally after vowel. (Further syntagmatic details will be given in section 2.) Then we shall present tables showing the development of the PGmc. consonants in five different positions:

(1) #CV (2) VCCV (3) VCV (4a) VC(V) (4b) VC#

These positions are: (1) word-initially before vowel; (2) doubly between vowels; (3) singly between vowels; (4a) singly between vowels in PGmc., but word-finally (after loss of the following vowel) in the descendant languages; and (4b) word-finally, both in PGmc. and in the descendant languages.

No attempt will be made here to justify in detail the consonant systems assumed for the seven oldest Gmc. languages. For such details, here in some cases slightly modified, see: for all but OFri., Moulton 1954; for Go., Moulton 1948; for early OE, Kuhn 1970; for OHG, Moulton 1969 and Penzl 1971. The methodology used here is essentially that of 'structural phonology,' with a bit of Prague School admixture. For entirely compatible results, using the methodology of 'generative phonology,' see Voyles 1967 (from PIE to PGmc.) and Voyles 1968 (from PGmc. to Go., with extensive remarks also on NGmc. and WGmc.).

1.2.1 The evidence of Gothic

Go. seems to have had the following system of consonants:

p ~ f	t ~ þ	k ~ h	k^w ~ h^w (?)
b ~ þ	d ~ ð	g ~ g ~ x	
	s		
	z		
m	n	~ ŋ	
	l, r		
w		j	

Syntagmatically, these consonants occurred as follows (occurrences not attested in Go., presumably because of the limited body of documents preserved, are parenthesized):

p-	(-pp-)	-p-	-p	t-	-tt-	-t-	-t	k-	(-kk-)	-k-	-k	k^w-	-k^w-	(-k^w)
f-	(-ff-)	-f-	-f	þ-	-þþ-	-þ-	-þ	h-	(-xx-)	-h-	-h	h^w-	-h^w-	-h^w
b-	(-bb-)	-ƀ-	—	d-	(-dd-)	-ð-	—	g-	(-gg-)	-g-	-x			
				s-	-ss-	-s-	-s							
				—	—	-z-	—							
m-	-mm-	-m-	-m	n-	-nn-	-n-	-n							
				l-	-ll-	-l-	-l							
				r-	-rr-	-r-	-r							
w-	—	-w-	-w					j-	—	-j-	—			

Omitted from the above table is the fact that a number of consonants occurred doubly not only in intervocalic position but also word-finally: /-tt -ss -mm -nn -ll/ and perhaps (unattested) /-rr/.

Table 1 gives the Go. reflexes of the various PGmc. consonants. Conversely, it also justifies the consonant system reconstructed for PGmc. as being necessary (in most cases) and sufficient (in all cases) to account for the consonant system of Go.

LONG CONSONANTS. Like the other oldest Gmc. languages, Go. provides clear evidence only for PGmc. long [ss rr ll mm nn] and [ww jj] (giving Go. [ggw] and [ddj], respectively). Go. *skattans* is an isolated example providing evidence for PGmc. [tt]; and Go. *aiþþau* is an isolated example perhaps providing evidence for PGmc. [þþ]. The form *smakkans* indicates Go. [kk]; but, as a loanword, it provides no evidence for PGmc. [kk]. The remaining parenthesized forms are Biblical loanwords which suggest that Go. had long [pp ff bb dd] but provide no evidence for PGmc.

LABIALS AND DENTALS. Medial *b*, *d* seem to have been fricatives in Go. (and hence also in PGmc.), since they alternate with *f*, *þ* finally and before *-s* (< *-z*). Cf. dat. *hlaiba*, inf. *giban*, but acc. *hlaif*, nom. *hlaifs*, past *gaf;* dat. *stada*, 1 sg. pres. *anabiuda*, but acc. *staþ*, nom. *staþs*, past *anabauþ;* and dat. *riqiza* but nom. *riqis*. Hence we may conclude that all PGmc. voiced fricatives were devoiced word-finally in Go. Occasional spellings such as *hlaib*, *hlaibs*, *stad*, *stads*, *anabaud*, *riqiz* can be interpreted as morphophonemic, comparable to MnGer. *gab* = /gāp/, *Rad* = /rāt/, etc.

VELARS. If medial *-b-* and *-d-* were voiced fricatives, then presumably medial *-g-* was also a voiced fricative; and if *b* and *d* were devoiced finally and before *-s*, then presumably *g* was also devoiced finally and before *-s*. However, whereas devoiced *b* and *d* were usually spelled *f* and *þ* and hence were /f/ and /þ/, devoiced *g* was always spelled *g* and hence was not /h/. Go. *g* contrasts with *h* not only medially: dat. *daga* 'day' vs. dat. *slaha* 'blow', but also finally: acc. *dag* vs. acc. *slah*, before *-s:* nom. *dags* vs. *ahs* 'ear (of grain)', and also before *-t: magt* 'thou canst' vs. acc. *maht* 'might'. Since medial *g* (= [g]) was presumably devoiced to voiceless

Table 1. The consonants of Gothic*

	(1) #CV		(2) VCCV		(3) VCV		(4a) VC(V)		(4b) VC#	
p	> [p]	pugg	[pp]	(filippus)	[p]	greipan	[p]	skip	[p]	graip
f	> [f]	fiskos	[ff]	(aiffaþa)	[f]	-hofun	[f]	?	[f]	-hof
b ~ β	> [b]	baurgs	[bb]	(sabbato)	[β]	giban	[f]	hlaif	[f]	gaf
t	> [t]	tuggo	[tt]	skattans	[t]	witan	[t]	mat	[t]	wait
þ	> [þ]	þaurnjus	[þþ]	aiþþau	[þ]	qiþan	[þ]	sauþ	[þ]	qaþ
d ~ ð	> [d]	dags	[dd]	(addeins)	[ð]	-biudiþ	[þ]	staþ	[þ]	-bauþ
k	> [k]	kaurn	[kk]	(smakkans)	[k]	-brikan	[k]	gajuk	[k]	brak
x ~ h	> [h]	haurn	[xx]	?	[h]	tiuhan	[h]	gaskoh	[h]	tauh
g ~ ɣ	> [ɣ]	goþs	[gg]	?	[ɣ]	magun	[x]	daig	[x]	mag
k^w	> [k^w]	qiþan			[k^w]	naqaþs	[k^w]	?	[k^w]	?
h^w	> [h^w]	ƕeita			[h^w]	saiƕan	[h^w]	neƕ	[h^w]	saƕ
s	> [s]	sunus	[ss]	wissa	[s]	wisan	[s]	-weis 'wise'	[s]	was
z	>	—		—	[z]	maiza	[s]	riqis	[s]	weis 'we'
r	> [r]	raudai	[rr]	fairra	[r]	bairan	[r]	wair	[r]	-bar
l	> [l]	lagg	[ll]	fullans	[l]	skulun	[l]	stol	[l]	skal
m	> [m]	mena	[mm]	imma	[m]	niman	[m]	?	[m]	nam
n	> [n]	nahts	[nn]	sunno	[n]	hana	[n]	stain	[n]	þan
w	> [w]	winds	[ggw]	triggwa	[w]	speiwand	[w]	aiw	[w]	-spaiw
j	> [j]	jer	[ddj]	twaddje	[j]	frauja	[i]	taui		—

* Only actually attested forms are listed, taken from Schulze 1848.

velar [x], Go. *h* must have been something *other* than voiceless velar [x]– most likely the non-localized cavity fricative which *h* represents in the modern Gmc. languages. This means that the 'velar' order of obstruents, already unlike the labial and dental orders in PGmc., was still more unlike them in Go. Go. /g ~ g ~ x/ can no longer be described as a 'voiced velar stop-fricative,' since word-finally and before *-s* and *-t* it was voiceless; and Go. *h* was clearly not the voiceless counterpart of [g] but was something other than 'velar.'

LABIOVELARS. It is not clear whether the Go. letters customarily transcribed *q* and *hv* should be interpreted (i) as representing the unit phonemes /k^{w}/ and /h^{w}/, or (ii) as representing the clusters /kw/ and /hw/. Arguments in favor of the unit phonemes /k^{w}/ and /h^{w}/ are (1) the fact that Go. *q* and *hv* reflect the PIE unit phonemes /g^{w}/ (e.g. Go. *qino* 'woman' < PIE /g^{w}en-/) and /k^{w}/ (e.g. Go. *hvas* 'who' < PIE /k^{w}os/); (2) the fact that all other Go. strong verbs of class V (e.g. *giban, gaf, gebun, giban-*) show only a single consonant following the stem vowel, so that the *hv* following the stem vowel of *saihvan, sahv, sehvun, -saihvans* should also be interpreted as representing a single consonant; and (3) the fact that Bishop Wulfila, in the alphabet which he devised, felt impelled to use the single letters *q* and *hv*. Arguments in favor of the clusters /kw/ and /hw/ are (1) the fact that *hv* reflects not only the PIE unit phoneme /k^{w}/ (as above) but also the PIE phoneme cluster /kw/ (e.g. *aihva-* < PIE /ekwo-/); (2) the fact that hypothetical /k^{w}/ and /h^{w}/ would behave syntagmatically quite unlike /k/ and /h/, since there would be no /k^{w}n- k^{w}l- k^{w}r-/ parallel to /kn- kl- kr-/ as in *kniwam, -klahs, krusts* (*qr-* appears only once in the doubtful form *qrammiþa*), and since there would be no /h^{w}n- h^{w}l- h^{w}r-/ parallel to /hn- hl- hr-/ as in *hneiwan, hlaifs, hrains;* and (3) the fact that a syntagmatic parallel between /k h/ and /t þ/ is obtained only if we interpreted the initials of *qaþ, hvas* as /kw-/, /hw-/, parallel to the initials of *twai* (/tw-/) and *þwah* (/þw-/).

1.2.2 The evidence of Runic Norse

The term 'Ru. Norse' is used here to refer to the early Norse inscriptions (ca. 3rd to 8th century) that are written in the 24-rune alphabet. Though the evidence is highly fragmentary and often unclear, it suggests that Ru. Norse had much the same consonant system as Go., minus the labiovelars:

p ≠ f	t ≠ þ	k ≠ h
b ~ ƀ	d ~ ð	g ~ g
	s	
	ʀ	

m n ~ ŋ
l, r
w j

Support for this system is provided not only by inscriptions of the usual sort, consisting of words and sentences, but also by two inscriptions which contain the 24-rune alphabet. The Vadstena inscription (5th century) gives this 'futhark' alphabet as follows (here in roman transcription): *fuƥarkgw.hnijėpRs.tbemlŋod.* The Kylver inscription (ca. 400) uses the same order except that the positions of *p* and *ė*, and of *o* and *d* are reversed. Six of these 24 letters *(uaiėeo)* represent vowels. The remaining 18, representing consonants, give precisely the 17-consonant system noted above, plus a symbol *ŋ* for the velar allophone of /n/. The letter *p* occurs only in these two inscriptions.

These 17 consonants probably occurred syntagmatically as follows (non-attested examples are parenthesized):

(p-)	(-pp-)	-p-	(-p)	t-	(-tt-)	-t-	-t	k-	(-kk-)	-k-	-k	
f-	(-ff-)	(-f-)	-f ↑	þ-	(-þþ-)	-þ-	-þ ↑	h-	(-xx-)	-h-	-h	↑
b-	(-bb-)	-ƀ-	(-ƀ) |	d-	(-dd-)	-ð-	-ð |	g-	(-gg-)	-g-	(-g)	|
				s-	(-ss-)	-s-	-s					
				—	—	-ʀ-	-ʀ					
m-	-mm- ?	(-m-)	-m	n-	-nn- ?	-n-	-n					
				l-	-ll- ?	-l-	(-l)					
				r-	(-rr-)	-r-	-r					
w-	—	-w-	(-w)					(j-)	—	-j-	—	

Arrows indicate the 7th century devoicing of word-final voiced fricatives. Note that word-final /R/ was not devoiced to /s/. This indicates that, unlike Go. /z/, Ru. /R/ was at the time of devoicing no longer the voiced counterpart of /s/.

Table 2 gives the Ru. Norse reflexes of the various PGmc. consonants; and, at the same time, it justifies in large part the consonant system that we assume for PGmc. The only position for which Ru. Norse provides no evidence whatever is (2) VCCV. Possible examples are given for /ll mm nn/, but only because they seem to be cognate with OI forms showing long consonants; the actual Ru. spellings show single letters.

Two spellings need special mention. The form *kAibA* (ca. 700), given to illustrate the reflex of PGmc. /p/ in position (3) VCV, is valid evidence only if we take it to be cognate with OI *keipa;* the use of the letter *b* rather than *p* is characteristic of the later Ru. inscriptions. The form *alawid* (5th century), given to illustrate the reflex of PGmc. [ð] in position (4a)

Table 2. The consonants of Runic Norse*

	(1) #CV		(2) VCCV		(3) VCV		(4a) VC(V)		(4b) VC#	
p	> [p]	?	[pp]	?	[p]	kAibA^{700}	[p]	?	[p]	?
f	> [f]	faihido^{400}	[ff]	?	[f]	?	[f]	?	[f]	?
b ~ þ	> [b]	birg^{6th}	[bb]	?	[þ]	gibu^{5th}	[þ]	?	[f]	gAf^{7th}
t	> [t]	tawido^{400}	[tt]	?	[t]	haitinaR^{6th}	[t]	?	[t]	þat^{7th}
þ	> [þ]	þar^{600}	[þþ]	?	[þ]	laþu^{5th}	[þ]	?	[þ]	?
d ~ ð	> [d]	dagaR^{400}	[dd]	?	[ð]	tawido^{400}	[ð]	alawid^{5th}	[þ]	bAriutiþ^{7th}
k	> [k]	-kurne^{6th}	[kk]	?	[k]	laukaR^{350}	[k]	?	[k]	ek^{400}
x ~ h	> [h]	horna^{400}	[xx]	?	[h]	faihido^{400}	[h]	?	[h]	aih^{6th}
g ~ g	> [g]	-gastiR^{400}	[gg]	?	[g]	dagaR^{400}	[g]	?	[h]	?
s	> [s]	satido^{400}	[ss]	?	[s]	gisai^{250}	[s]	?	[s]	was^{6th}
z	>	—		—	[R]	hroRaR^{7th}	[R]	?	[R]	meR^{6th}
r	> [r]	runo^{400}	[rr]	?	[r]	-mariR^{300}	[r]	?	[r]	þar^{600}
l	> [l]	liubu^{6th}	[ll]	?ala^{250}	[l]	alu^{400}	[l]	?	[l]	?
m	> [m]	magu^{500}	[mm]	?suema[n]de^{700}	[m]	?	[m]	?	[m]	-nam^{600}
n	> [n]	niujil[a]^{5th}	[nn]	?fino^{500}	[n]	staina^{500}	[n]	hin^{700}	[n]	?
w	> [w]	worahto^{500}		—	[w]	hlewa-^{400}	[w]	?	[w]	?
j	> [j]	?		—	[j]	waje-^{300}	[j]	?		—

* Cited forms are from Noreen ^{4}1923, inscriptions 374–93, index 462–6. Superscript numbers refer to the approximate date or century.

VC(V), antedates the 7th century devoicing of word-final voiced fricatives; hence the letter *d* = [ð]. Devoicing is illustrated by the 7th century form *bAriutiþ* in column (4b), with *þ* = [þ] < [ð].

1.2.3 The evidence of Old Icelandic

OI seems to have had the following system of consonants:

p ≠ b		t ≠ d			k	
f ~ ƀ		þ ~ ð			g ~ g ~ x	
		s				
m		n	~	ŋ		
		l, r				
	v	h	j			

Note, among the labial and dental obstruents, the changed functions of the oppositions Voiceless ≠ Voiced and Stop ≠ Fricative. OI shows a primary opposition Stop ≠ Fricative: /p, b/ ≠ /f ~ ƀ/, /t, d/ ≠ /þ ~ ð/; and a secondary opposition Voiceless ≠ Voiced which is phonemic for the stops: /p/ ≠ /b/, /t/ ≠ /d/, but allophonic for the fricatives: /f ~ ƀ/, /þ ~ ð/. The restructuring of the PGmc. velars will be discussed below.

Syntagmatically, these 16 consonants occurred as follows:

p-	-pp-	-p-	-p	t-	-tt-	-t-	-t	k-	-kk-	-k-	-k
f-	-ff-	-ƀ-	-ƀ	þ-	—	-ð-	-ð				
b-	-bb-	↑	↑	d-	-dd-	↑	↑	g-	-gg-	-g-	-g
				s-	-ss-	-s-	-s				
m-	-mm-	-m-	-m	n-	-nn-	-n-	-n				
				l-	-ll-	-l-	-l				
				r-	-rr-	-r-	-r				
v-	—	—	—	h-	—	—	—	—	—	-j-	—

Arrows indicate the merger of PGmc. [-ƀ- -ƀ -ð- -ð] with the [-ƀ- -ƀ -ð- -ð] that arose through the 8th century voicing of PGmc. [-f- -f -þ- -þ]. The reasons for agreeing with the OI scribes in assigning [ƀ], [ð] to the phonemes /f/, /þ/, rather than to /b/, /d/, are given in Moulton 1954.

Table 3 gives the OI reflexes of the various PGmc. consonants, and again justifies in most respects the consonant system reconstructed for PGmc. The one PGmc. consonant for which OI gives no direct evidence is /z/, since this has merged with the reflex of PGmc. /r/; this is also true of the remaining Gmc. languages.

LONG CONSONANTS. OI gives evidence for most of the long consonants assumed for PGmc., though with marked changes in three cases: PGmc. /þþ/ gives OI /tt/, as in *motte* (i.e. merger with /tt/ < /tt/ in *skattar*);

Table 3. The consonants of Old Icelandic*

	(1) #CV		(2) VCCV		(3) VCV		(4a) VC(V)		(4b) VC#	
p	> [p]	pungr	[pp]	uppe	[p]	grīpa	[p]	skip	[p]	greip
f	> [f]	fiskr	[ff]	(offra)	[b]	hōfar (pl.)	[b]	hōf (acc.)	[b]	hōf (pret.)
b ~ b̥	> [b]	borg	[bb]	krabbe	[b̥]	gefa	[b̥]	hleif (acc.)	[b̥]	gaf
t	> [t]	tunga	[tt]	skattar (pl.)	[t]	vita	[t]	mat	[t]	veit
þ	> [þ]	þorn	[tt]	motte	[ð]	kueþa	[ð]	baþ	[ð]	kuaþ
d ~ ð	> [d]	dagr	[dd]	kodde	[ð]	biōþa	[ð]	staþ (acc.)	[ð]	bauþ
k	> [k]	korn	[kk]	stokkar (pl.)	[k]	taka	[k]	ok	[k]	tōk
x ~ h	> [h]	horn		—	Ø	tiā	Ø	skō (acc.)	Ø	tē
g ~ g̥	> [g]	gōþr	[gg]	vagga	[g̥]	draga	[g̥]	gnōg (fem.)	Ø	drō
s	> [s]	sunr	[ss]	vissa	[s]	vesa	[s]	vīs	[s]	vas
z	>	—		—	[r]	meiri	[r]	dȳr	[r]	vēr
r	> [r]	rauþr	[rr]	fiarre	[r]	bera	[r]	ver (acc.)	[r]	bar
l	> [l]	langr	[ll]	falla	[l]	skolo	[l]	stōl (acc.)	[l]	skal
m	> [m]	māni	[mm]	suim(m)a	[m]	nema	[m]	rūm	[m]	nam
n	> [n]	nōtt	[nn]	sunna	[n]	hani	[n]	stein (acc.)	Ø	þā
w	> [v]	vindr	[ggv]	trygguan	[b̥]	sēfar (pl.)	Ø	knē	Ø	spiō
j	> Ø	ār	[ggj]	tueggia	[j]	Freyia		?		—

* Spellings as in Noreen ⁴1923.

and PGmc. /ww/, /jj/ give OI /ggv/, /ggj/ as in *trygguan*, *tueggia* (cf. the similar changes in Go.). The loanword *offra* < Lat. *offerre* suggests the presence of /ff/ in OI, but of course provides no evidence for PGmc. /ff/. For PGmc. /xx/ there is no OI evidence at all, and the First Grammarian (Haugen 1950) assures us that it did not occur.

VELARS. In one respect the PGmc. system of velars has been largely maintained in OI; in another respect it has been drastically altered. Unlike the labials and dentals, the OI velars still show a primary opposition Voiceless ÷ Voiced, namely /k/ ÷ /g ~ g/, with the voiced member still showing stop and fricative allophones. (The opposition can no longer be neatly described as Voiceless ÷ Voiced, however, since /g ~ g/ developed a voiceless allophone [x] before /t/ and /s/: cf. neut. *heilagt* [heilaxt], gen. *heilags* [heilaxs]. On the analogical origin of these forms, cf. Moulton 1954.) OI /h/, on the other hand, has become a consonant quite different from PGmc. /x ~ h/, because of two types of changes. First, PGmc. [xs], [xt] became [ks], [tt], as in *sex* /seks/ < PGmc. [sexs], *ātta* < PGmc. [axtau]. Second, all remaining examples of PGmc. [x] became [h] and were then lost. Cf. OI *tiā* < [tīhan] < PGmc. [tīxanan] in position (3) VCV; OI *skō* < [skōh] < PGmc. [skōxan] in position (4a) VC(V); and OI *tē* < [taih] < PGmc. [taix] in position (4b) VC#. (Cf. also OI *drō* < [drōh] < [drōx] < PGmc. [drōg] in position (4b) VC#.) As a result, OI /h/ = [h] occurs only word-initially, can in no sense be considered a 'velar,' and is probably best classified as a 'glide' comparable to /v/.

1.2.4 The evidence of Old English

OE seems to have had the following system of consonants:

p ÷ b	t ÷ d	ć ÷ ǵ	k ÷ x ~ h
f ~ v	þ ~ ð		g ~ g
	s ~ z		
m	n	~	ŋ
	l, r		
	w	j	

As in OI (and in all the remaining oldest Gmc. languages except OHG), the labials and dentals show a primary opposition Stop ÷ Fricative: /p, b/ ÷ /f ~ v/, /t, d/ ÷ /þ ~ ð/; and a secondary opposition Voiceless ÷ Voiced which is phonemic for the stops: /p/ ÷ /b/, /t/ ÷ /d/ (cf. also palatal /ć/ ÷ /ǵ/), but allophonic for the fricatives: /f ~ v/, /þ ~ ð/ (cf. also sibilant /s ~ z/). The velars, on the other hand, still preserve the PGmc. system: a primary opposition Voiceless ÷ Voiced: /k, x ~ h/ ÷ /g ~ g/; and a

secondary opposition Stop ∻ Fricative which is phonemic for the voiceless consonants: /k/ ∻ /x ~ h/, but allophonic for the voiced consonant: /g ~ g/. (Note. The exact phonetic nature of the consonants here symbolized as /ć/, /ǵ/ is uncertain. Historically, they arose through palatalization of the pre-OE velar stops [k], [g], respectively. In OE they were surely palatal stops; perhaps they already had sibilant release. Their MnE reflexes are /č/ = [tš] and /ǰ/ = [dž].)

Syntagmatically, these 18 consonants occurred as follows:

p-	-pp-	-p-	-p	t-	-tt-	-t-	-t	ć-	-ćć-	-ć-	-ć	k-	-kk-	-k-	-k
f-	-ff-	-v-	-f	þ-	-þþ-	-ð-	-þ					h-	-xx-	—	-x
b-	-bb-	—	-b	d-	-dd-	-d-	-d	—	-ǵǵ-	—	-ǵ	g-	-gg-	-g-	—
				s-	-ss-	-z-	-s								
m-	-mm-	-m-	-m	n-	-nn-	-n-	-n								
				l-	-ll-	-l-	-l								
				r-	-rr-	-r-	-r								
w-	—	-w-	-w					j-	—	-j-	-j				

Final [-b] and [-ǵ] result from shortenings of earlier [bb] and [ǵǵ] after they had come to stand in word-final position. Cf. *rib(b)* < [ribbj-] and *ecg* < [aggj-]. These pre-OE long consonants resulted from the WGmc. doubling of consonants before /j/ and are derived from PGmc. [riƀj-] and [agj-].

Table 4 gives the OE reflexes of the various PGmc. consonants, and again justifies the consonant system reconstructed for PGmc. The forms *wreććan* and *lecgan* in position (2) are parenthesized because they represent not PGmc. VCCV but VCjV; and *ecg* in position (4a) is parenthesized because it represents not PGmc. VC(V) but VCj(V).

PGmc. /d ~ ð/. In OE, as in all the remaining Gmc. languages, PGmc. /d ~ ð/ became /d/ in all positions. Cf. PGmc. [beoðanan, bauð], OI *biōþa, bauþ*, but OE *bēodan, bēad.*

Fricatives: medial voicing, final devoicing. After the change of [ð] to [d], the remaining voiceless fricatives were voiced medially–and perhaps as part of this process, medial [h] was lost–and the remaining voiced fricatives were devoiced finally. Examples, with voicing symbolized by downward arrows, devoicing by upward arrows:

	Medial	Final	Medial	Final	Medial	Final	Medial	Final
Voiceless:	↓	hōf	↓	cwæþ	↓	wæs	↓	flēah
		hlāf						flēag, -h
	hōfas	↑	cweþan		wesan		flēon	↑
Voiced:	hlāfas						flēogan	

Where final [x] alternated with medial zero (after loss of [-h-]), it was generally written *-h: scōh* 'shoe', *tōh* 'tough', *rūh* 'rough'. Where it al-

Table 4. The consonants of Old English (West Saxon)*

	(1) #CV		(2) VCCV		(3) VCV		(4a) VC(V)		(4b) VC#	
p	> [p]	pæþ	[pp]	uppe	[p]	grīpan	[p]	scip	[p]	grāp
f	> [f]	fisc	[ff]	woffian	[v]	hēofan	[f]	hōf	[f]	hēaf
b ~ ƀ	> [b]	burg	[bb]	crabba	[v]	ġiefan	[f]	hlāf	[f]	ġeaf
t	> [t]	tunge	[tt]	sceattes	[t]	witan	[t]	fæt	[t]	wāt
þ	> [þ]	þorn	[þþ]	moþþe	[ð]	cweþan	[þ]	bæþ	[þ]	cwæþ
d ~ ð	> [d]	dæġ	[dd]	coddes	[d]	bēodan	[d]	blæd	[d]	bēad
k	> [ć]	ćinn	([ćć]	wreććan)	[ć]	bryće	[ć]	līć	[ć]	ić
[g]	>	—	([ǵǵ]	lecgan)		—	([ǵ]	ecg)		—
k	> [k]	corn	[kk]	stocces	[k]	brecan	[k]	ġeoc	[k]	bræc
x ~ h	> [h]	horn	[xx]	cohhettan	Ø	tēon	[x]	scōh	[x]	tēah
g ~ g̱	> [g]	gōd	[gg]	dogga	[g̱]	dragan	[x]	ġenōg, -h	[x]	drōg, -h
s	> [s]	sunu	[ss]	wisse	[z]	wesan	[s]	wīs	[s]	wæs
z	>	—		—	[r]	māra	[r]	dēor	Ø	wē
r	> [r]	rēad	[rr]	feorran	[r]	beran	[r]	wer	[r]	bær
l	> [l]	lang	[ll]	feallan	[l]	sculan	[l]	stōl	[l]	sceal
m	> [m]	mōna	[mm]	swimman	[m]	niman	[m]	rūm	[m]	nōm
n	> [n]	neaht	[nn]	sunne	[n]	hana	[n]	stān	[n]	þan
w	> [w]	wind	[uw]	hēawan	[w]	spīwan	[u]	cnēo	[w]	spāw
j	> [j]	ġēar	[ij]	frīġedæġ	[j]	frīeġa	[j]	hīeġ		—
[g]	> [j]	ġield		—	[j]	siġe	[j]	weġ		?

* Scribal g = /j/ is noted here with the symbol $\dot{g}$, and scribal c = /ć/ with the symbol $\acute{c}$,

ternated with medial [-g-], it was also often written *-h: dāh* 'dough', *plōh* 'plow', *troh* 'trough'; but more commonly it was written *-g: dāg, plōg, trog*. This implies, on the part of the scribes, an identification of final [-x] in such words with medial [-g-], and hence an underlying phoneme /g/ realized phonetically as [g ~ ɣ ~ x]–thus overlapping the final [-x] of /h/ = [h ~ x].

PALATALS. The OE palatals /ć/ and /ǵ/ do not require us to asume a palatal order of consonants in PGmc., since they can be derived from PGmc. /k/ and /g ~ ɣ/, respectively. OE /ć/ comes from PGmc. /k/ before front vowels and /j/, and word-finally after /i/ or /ī/. Examples: *cinn* [ćin] < PGmc. [kinn-]; *wreccan* [wreć́an] < [wrakkjan] < PGmc. [wrakjan-]; *bryce* [bryće] < PGmc. [bruki-]; *līc* [līć] < PGmc. [līka-]; *ic* [ić] < PGmc. [ik]. OE /ǵ/ comes from the PGmc. stop allophone [g], as after nasal and before /j/ in *sengan* [seńgan] < PGmc. [sangjan-]; and from the PGmc. fricative allophone [ɣ] where this became a stop through doubling before /j/, as in *lecgan* [leǵǵan] < [laggjan] < PGmc. [lagjan-], or *ecg* [eǵ] < [aggju] < PGmc. [agjō]. Where the PGmc. fricative allophone [ɣ] remained a fricative, it was also palatalized when it stood before a front vowel or, word-finally in pre-OE, after a front vowel; upon palatalization it merged with the reflex of PGmc. /j/. Examples are given in the last line of Table 4.

SEMIVOWELS. In OE and the remaining 'WGmc.' languages, the first /w/, /j/ of PGmc. /-ww-/, /-jj-/ combined with the preceding vowel to give a diphthong or long vowel:

eww	> euw		> OE ēow,	cf. *trēow*
aww	> auw		> OE ēaw,	cf. *hēawan*
uww	> uuw	> ūw	> OE ūw,	cf. *scūwa* (or *scuwa?*)
ijj	> iij	> īj	> OE īj,	cf. *frīǵedæǵ*
ajj	> aij	> āj	> OE ǣj,	cf. *wǣǵ*

In position (4a) VC(V), /w/ was lost after long vowels, but combined with a preceding short vowel to give a diphthong: PGmc. [knewan] > [kneu] > [kneo] > OE *cnēo*.

1.2.5 The evidence of Old Frisian

OFri. seems to have had the following system of consonants, much like that of OE:

p ± b	t ± d	$t^s \pm d^z$	k ± x ~ h
f ~ v	þ ~ ð		g ~ ɣ
	s ~ z		

m	n	~		ŋ
	l, r			
w		j		

The symbols /t^s/ and /d^z/ represent consonants whose precise phonetic values are uncertain. Like OE /ć/ and /ǵ/, they arose through the palatalization of [k] and [g]. But whereas OE /ć/ and /ǵ/ seem to have been primarily palatal stops which perhaps only secondarily had (or developed) sibilant release, OFri. /t^s/ and /d^z/ seem to have been primarily stops with sibilant release (affricates) which had perhaps lost most of their earlier palatal quality. The OFri. scribes wrote these consonants with a wide variety of spellings. For /t^s/: *ts, tz, tsch, z, s, sz, tsz, st, zt, sth, thz,* and (palatal ?) *tsi, tzi, tji, zi, si, sti.* For /d^z/: *dz, tz, ds, ts, z, s, sz,* and (palatal ?) *dzi, tzi, zi, si, szi.* Many of these spellings suggest that, during the OFri. period, /t^s/ and /d^z/ were rephonemicized to the clusters /ts/ and /ds/, respectively.

Syntagmatically, these 18 consonants occurred as follows:

p-	-pp-	-p-	-p	t-	-tt-	-t-	-t	t^s-	—	-t^s-	—	k-	-kk-	-k-	-k
f-	(-ff-)	-v-	-f	þ-	-þþ-	-ð-	-þ					h-	-xx-	—	-x
b-	-bb-	—	-b	d-	-dd-	-d-	-d	—	—	-d^z-	—	g-	-gg-	-g-	-g
				s-	-ss-	-z-	-s								
m-	-mm-	-m-	-m	n-	-nn-	-n-	-n								
				l-	-ll-	-l-	-l								
				r-	-rr-	-r-	-r								
w-	—	-w-	-w					j-	—	-j-	—				

Final [-b] and [-g] represent shortenings of earlier [bb] and [gg] after they had come to stand in word-final position. Cf. *ribb* [rib] < [ribbj-] < PGmc. [riƀj-], and *egg* [eg] < [aggj-] < PGmc. [agj-].

Table 5 gives the OFri. reflexes of the various PGmc. consonants, and again justifies the consonant system reconstructed for PGmc. The forms *wretza* and *ledza* in position (2) are parenthesized because they represent not PGmc. VCCV but VC*j*V; see below.

FRICATIVES: MEDIAL VOICING, FINAL DEVOICING. OFri. shows the same voicing of medial fricatives (together with loss of medial [h]) and devoicing of final fricatives as OE:

	Medial	Final	Medial	Final	Medial	Final	Medial	Final
Voiceless:	↓	hof	↓	kweth	↓	wes	↓	flāch
	↓	ief	↓		↓		↓	flāch
	hovar	↑	kwetha		wesa		fliā	↑
Voiced:	ieva	↑					fliaga	↑

Table 5. The consonants of Old Frisian

	(1) #CV		(2) VCCV		(3) VCV		(4a) VC(V)		(4b) VC#	
p	> [p]	path	[pp]	uppa	[p]	grīpa	[p]	skip	[p]	grēp
f	> [f]	fisk	[ff]	(offer)	[v]	hovar	[f]	hof	[f]	?
b ~ þ	> [b]	burg	[bb]	bobba	[v]	ieva	[f]	hlēf	[f]	ief
t	> [t]	tunge	[tt]	skettes	[t]	wita	[t]	bet	[t]	wēt
þ	> [þ]	þorn	[þþ]	withthe	[ð]	kwetha	[þ]	beth	[þ]	kweth
d ~ ð	> [d]	dei	[dd]	kudda	[d]	biada	[d]	bled	[d]	bād
k	> [t^s]	zin	([t^s]	wretza)	[t^s]	breze		—		—
[gg]	>	—	([d^z]	ledza)		—		—		—
k	> [k]	korn	[kk]	stokkes	[k]	breka	[k]	bek	[k]	brek
x ~ h	> [h]	horn	[xx]	krocha	Ø	tiā	[x]	scōch	[x]	tāch
g ~ ɣ	> [g]	gōd	[gg]	rogga	[ɣ]	drega	[x]	enōch	[x]	drōch
s	> [s]	sunu	[ss]	kosses	[z]	wesa	[s]	wīs	[s]	wes
z	>	—		—	[r]	māra	[r]	diār	Ø	wī
r	> [r]	rād	[rr]	?	[r]	bera	[r]	wer	[r]	ber
l	> [l]	lang	[ll]	falla	[l]	skelo	[l]	stōl	[l]	skel
m	> [m]	mōna	[mm]	swimma	[m]	nima	[m]	rūm	[m]	nam
n	> [n]	nacht	[nn]	sunne	[n]	hana	[n]	stēn	[n]	than
w	> [w]	wind	[uw]	triūwe	[w]	hriowa	Ø	knī	[w]	hrāw
j	> [j]	jēr	[ij]	frīgendei	[j]	?	Ø	hā, hē		—
[ɣ]	> [j]	jeld		—	[j]	wein	[j]	wei		—

AFFRICATES. The OFri. affricates /t^s/ and /d^z/ do not require us to assume an affricate order of consonants in PGmc., since they can be derived from PGmc. /k/ and /g ~ ɣ/, respectively. OFri. /t^s/ comes from PGmc. /k/ before front vowels and /j/. Examples: *zin* [t^{s}in] < PGmc. [kinn-] (cf. OE *cinn*); *breze* [bret^{s}e] < PGmc. [bruki-] (cf. OE *bryce*); *wretza* [wret^{s}a] < PGmc. [wrakjan-] (cf. OE *wreccan*). Unlike OE, OFri. does not show palatalization of /k/ word-finally after /ī/ and /i/: *līk* (cf. OE *līc* [līć]), *ik* (cf. OE *ic* [ić]). OFri. /d^z/ comes from PGmc. [g] where doubled before /j/: *ledza* [led^{z}a] < [laggjan] < PGmc. [lagjan-] (cf. OE *lecgan*). Unlike OE, OFri. does not show palatalization in such examples as *egg* [eg] < [aggju] < PGmc. [agjō] (cf. OE *ecg* [eǵ]). OFri. apparently shows no contrast between single and double /t^s/: single /t^s/ in both *wretza* (< [wrakkjan] < PGmc. [wrakjan-]) and *breze* (< PGmc. [bruki-]); this is again unlike OE, which shows double /ćć/ in *wreccan* [wreććan] vs. single /ć/ in *bryce* [bryće].

1.2.6 The evidence of Old Saxon

OS seems to have had the same system of consonants as OE and OFri., except for the absence of palatals (OE /ć ǵ/, OFri. /t^s d^z/):

p	∓	b		t	∓	d		k ∓ x ~ h
f	~	þ		þ	~	ð		g ~ g
				s	~	z		
m				n			~	ŋ
				l, r				
			w			j		

Syntagmatically, these 16 consonants occurred as follows:

p-	-pp-	-p-	-p	t-	-tt-	-t-	-t	k-	-kk-	-k-	-k
f-	(-ff-)	-þ-	-f	þ-	-þþ-	-ð-	-þ	h-	(-xx-)	-h-	-x
b-	-bb-	—	-b	d-	-dd-	-d-	-d	g-	-gg-	-g-	-g
				s-	-ss-	-z-	-s				
m-	-mm-	-m-	-m	n-	-nn-	-n-	-n				
				l-	-ll-	-l-	-l				
				r-	-rr-	-r-	-r				
w-	—	-w-	-w					j-	—	-j-	—

Final [-b] and [-g] represent shortenings of earlier [bb] and [gg] after they had come to stand in word-final position. Cf. *ribb* (beside *ribbi*) [rib] < [ribbj-] < PGmc. [riƀj-], and *segg* [seg] < [saggj-] < PGmc. [saɣj-].

Table 6 gives the OS reflexes of the various PGmc. consonants, and again justifies the consonant system reconstructed for PGmc.

Table 6. The consonants of Old Saxon

	(1) #CV		(2) VCCV		(3) VCV		(4a) VC(V)		(4b) VC#	
p	> [p]	pêda	[pp]	uppan	[p]	grīpan	[p]	skip	[p]	grêp
f	> [f]	fisk	[ff]	?	[v]	hioƀan	[f]	hof	[f]	hôf
b ~ ƀ	> [b]	burg	[bb]	Abbo	[v]	geƀan	[f]	graf	[f]	gaf
t	> [t]	tunga	[tt]	scattes	[t]	witan	[t]	fat	[t]	wêt
þ	> [þ]	thorn	[þþ]	ettho	[ð]	queðan	[þ]	bað	[þ]	quað
d ~ ð	> [d]	dag	[dd]	?	[d]	biodan	[d]	blad	[d]	bôd
k	> [k]	corn	[kk]	stokkes	[k]	brekan	[k]	juk	[k]	brak
x ~ h	> [h]	horn	[xx]	?	[h]	tiohan	[x]	skōh	[x]	tôh
g ~ ɡ	> [ɡ]	gōd	[gg]	roggo	[ɡ]	dragan	[x]	ginōg, -h	[x]	drōg, -h
s	> [s]	sunu	[ss]	wissa	[z]	wesan	[s]	wīs	[s]	was
z	>	—		—	[r]	mêro	[r]	dior	Ø	wē
r	> [r]	rôd	[rr]	ferrana	[r]	beran	[r]	wer	[r]	bar
l	> [l]	lang	[ll]	fallan	[l]	skulun	[l]	stōl	[l]	skal
m	> [m]	māno	[mm]	swimman	[m]	neman	[m]	rūm	[m]	nam
n	> [n]	naht	[nn]	sunna	[n]	hano	[n]	stên	[n]	than
w	> [w]	wind	[uw]	treuwa	[w]	spīwan	[u]	kneo	[w]	spêw
j	> [j]	jār	[ij]	tweio	[j]	frôio		?		—
[ɡ]	> [j]	geld		—	[j]	sigi-		?		—

LONG CONSONANTS. Though there are no recorded examples of OS long [ff dd xx] < PGmc. [ff dd xx], their existence in OS is suggested by the evidence of (Middle) LGer. Examples: MLG *puffen* (cf. OE *pyffan*), MLG *kodde* (cf. OFri. *kudda*), MLG *kuchen* (cf. OE *cohhettan*).

FRICATIVES: MEDIAL VOICING, FINAL DEVOICING. OS shows the same voicing of medial fricatives (though usually without loss of medial [h]) and devoicing of final fricatives as OE and OFri.:

	Medial	Final	Medial	Final	Medial	Final	Medial	Final
Voiceless:	↓	hof	↓	quað	↓	was	↓	tôh
	↓	gaf	↓		↓		↓	drōg, -h
	hoƀos	↑	queðan		wesan		tiohan	↑
Voiced:	geƀan	↑					dragan	↑

PALATALIZATION. Though OS differs from OE and OFri. in not showing palatalization of the stops [k] and [g], it agrees with them in showing palatalization of the fricative [g] before front vowels and merger with [j]. Examples are given in the last line of Table 6. Reasons for believing that *g* before front vowel represents /j/ are given in Moulton 1954. Examples: *geƀan, giƀid* < [geƀan giƀid] parallel to *gehan, gihid* < [jehan jihid].

1.2.7 The evidence of Old High German

OHG shows a consonant system radically different from those of the other oldest Gmc. languages. In early OHG the system seems to have been as follows:

Stops	plain	b ~ p	d ≠ t	g ~ k
	affricated	p^f	t^3	k^x
Fricatives		v ~ f	— ʒ ð ~ þ ṣ ~ s	h ~ x
Nasals		m	n	~ ŋ
Liquids			l, r	
Semivowels		w		j

The symbols [b d g v ð h ṣ] denote voiceless lenis obstruents; the symbols [p t k ʒ f þ x s] denote voiceless fortis obstruents; the symbols [p^f t^3 k^x] denote affricates (stops with fricative release). The affricate [k^x] probably varied geographically with the aspirate [k^h]. The sibilant [ʒ] was probably dorsal, the sibilant [ṣ ~ s] apical; cf. Joos 1952.

As in OI, OE, OFri., OS, the obstruents show a primary opposition Stop ≠ Fricative: /b ~ p, p^f/ ≠ /v ~ f/, /d, t^3, t/ ≠ /ð ~ þ/ (and also /ʒ, ṣ ~ s/), /g ~ k, k^x/ ≠ /h ~ x/. The secondary opposition among the

stops, however, is not Voiced ≠ Voiceless but rather Plain ≠ Affricate: /b ~ p/ ≠ /p^{f}/, /d, t/ ≠ /t^{3}/, /g ~ k/ ≠ /k^{x}/. There is also an opposition Lenis ≠ Fortis, though this is phonemic only in the case of the stops /d/ and /t/ initially before /r/, cf. early OHG (Isidor) *druoc* 'carried' vs. *triuuua* 'faith'.

Syntagmatically, these 18 consonants occurred as follows:

b-	-pp-	-b-	-b	d-	-tt-	-d-	-d		g-	-kk-	-g-	-g
				tr-								
p^{f}-		-p^{f}-	-p^{f}	t^{3}-		-t^{3}-	-t^{3}		k^{x}-		-k^{x}-	-k^{x}
				—	-ȝȝ-	—	-ȝ					
v-	-ff-	-v-	-f	ð-	-þþ-	-ð-	-þ(?)		h-	-xx-	-h-	-x
				ṣ-	-ss-	-ṣ-	-s					
m-	-mm-	-m-	-m	n-	-nn-	-n-	-n					
				l-	-ll-	-l-	-l					
				r-	-rr-	-r-	-r					
w-	—	-w-	—						j-	—	-j-	—

It is not clear whether [ð-] and [-ð-] were lenis, [-þþ-] and [-þ] fortis. Single [ð- -ð- -þ] later became the voiceless lenis stops [d- -d- -d], and double [-þþ-] the long voiceless stop [-tt-]; see below.

Two pre-OHG changes account for the radically different structure of the obstruents in OHG. (1) Not only PGmc. /d ~ ð/ (as in OE, OFri., OS) but also PGmc. /b ~ ƀ/, /g ~ g/ became stops in all positions. Singly they were lenis: [b d g]; doubly they were fortis: [pp tt kk]. (2) Through the 'High German consonant shift,' PGmc. /p t k/ split into (a) the stops [p t k] (after fricatives: OHG [sp st sk ft xt] < PGmc. [sp st sk ft xt]; and, in the case of [t], before [r]: OHG [tr] < PGmc. [tr]); (b) the affricates [p^{f} t^{3} k^{x}] (initially, when doubled, and after nasals and liquids); and (c) the fortis fricatives [ff ~ f ȝȝ ~ ȝ xx ~ x] (after vowels). The new [ff ~ f] < [p] merged with the old [-ff-] < [-ff-] and [-f] < [-f]; the new [xx ~ x] merged with the old [-xx-] < [-xx-] and [-x] < [x]; the new [ȝȝ ~ ȝ], however, did not merge with the reflex of any PGmc. fricative.

During the OHG period a number of further changes led to a restructuring of the system of obstruents. (1) The short fricative [ð ~ þ] became the lenis stop [d]; cf. early OHG (Isidor) *dhazs* 'that', middle OHG (Tatian) *thaz, daz*, late OHG (Notker) *daz*. (2) The long fricative [þþ] became (apparently) lenis [ðð], then [dd], and then [tt], thus merging with [tt] < PGmc. [dd]; cf. early OHG *smiththa* 'smithy', middle OHG *smidda*, late OHG *smitta*. (3) Apparently in reaction to these changes, early OHG lenis [d] became middle and late OHG fortis [t]; cf. early OHG (Isidor) *dohter*, 'daughter', middle OHG (Tatian) *dohter, tohter*, late OHG (Notker) *tohter*. Thereby early OHG [dr-] merged with [tr-]; cf. early OHG (Isidor) *druoc* ≠ *triuuua*, but middle OHG (Tatian) *truog* =

treuuua, and late OHG (Notker) *truog* = *triuua*. (4) The early OHG opposition Short (and also Lenis) ÷ Long (and also Fortis) gradually changed in middle and late OHG into an opposition Lenis (and also Short) ÷ Fortis (and in some positions also Long). For details, see Moulton 1954 and 1969.

These changes produced the system of obstruents customarily given in grammars and dictionaries of OHG:

Stops	lenis	b-	-b-	-b	d-	-d-	-d	g-	-g-	-g
	fortis		-p(p)-		t-	-t-	-t		-k(k)-	
						-tt-				
Affricates		p^f-	-p^f-	-p^f	t3-	-t^3-	-t3	k^x-	-k^x-	-k^x
Fricatives	fortis				—	-3(3)-	-3			
		—	-f(f)-	-f	—	-ss-	-s	—	-x(x)-	-x
	lenis	v-	-v-	—	ṣ-	-ṣ-	—	h-	-h-	—

Despite the many changes before and during OHG, the consonant system reconstructed for PGmc. is still necessary and sufficient to account by regular phonetic change for the consonant system of OHG–whether early, middle, or late. Table 7 gives the OHG reflexes, in the customary grammar and dictionary spellings, of the various PGmc. consonants. The form *offer* in (2) VCCV is parenthesized because, as a loanword (< Latin *offerre*), it provides no evidence for PGmc. /-ff-/.

1.3 Proto-Germanic and Proto-Indo-European

PIE seems to have had three classes of segmental phonemes: (1) obstruents, (2) resonants, and (3) vowels. Only the first two classes need to concern us here.

Obstruents. It is generally assumed that these consisted of twelve stops and one sibilant, as follows:

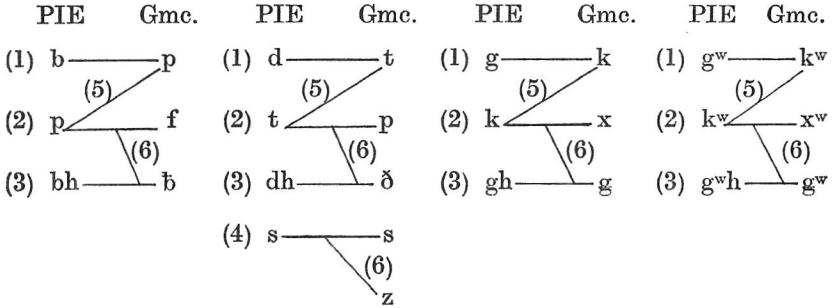
		Labial	Dental	Velar	Labiovelar
Voiceless		p	t	k	k^w
Voiced	plain	b	d	g	g^w
	aspirated	bh	dh	gh	g^wh
Sibilant			s ~ z		

Table 7. The consonants of Old High German*

	(1) #CV		(2) VCCV		(3) VCV		(4a) VC(V)		(4b) VC#	
p	> [p^{f}]	pfad	[p^{f}]	tropfo	[f(f)]	grīfan	[f]	skif	[f]	greif
f	> [f]	fisk	[ff]	(offer)	[v]	hiofan	[f]	hof	[f]	?
b ~ þ	> [b]	burg	[pp]	knappo	[b]	geban	[b]	hleib	[b]	gab
t	> [t^{3}]	zunga	[t^{3}]	scazzes	[ʒ(ʒ)]	wiʒʒan	[ʒ]	faz	[ʒ]	weiz
þ	> [d]	dorn	[tt]	fettāh	[d]	quedan	[d]	bad	[d]	quad
d ~ ð	> [t]	tag	[tt]	*cutto*	[t]	biotan	[t]	blat	[t]	bōt
k	> [k^{x}]	c(h)orn	[k^{x}]	*stocches*	[x(x)]	brechan	[x]	joh	[x]	brah
h ~ x	> [h]	horn	[xx]	*kachazzen*	[h]	ziohan	[x]	skuoh	[x]	zōh
g ~ ɣ	> [g]	guot	[kk]	rocko	[g]	tragan	[g]	ginuog	[g]	truog
s	> [ṣ]	sunu	[ss]	wissa	[ṣ]	wesan	[s]	wīs	[s]	was
z	>	—		—	[r]	mēro	[r]	tior	[r]	wir
r	> [r]	rōt	[rr]	ferro	[r]	beran	[r]	wer	[r]	bar
l	> [l]	lang	[ll]	fallan	[l]	skolan	[l]	stuol	[l]	skal
m	> [m]	māno	[mm]	swimman	[m]	neman	[m]	rūm	[m]	nam
n	> [n]	naht	[nn]	sunna	[n]	hano	[n]	stein	[n]	dan
w	> [w]	wint	[uw]	triuwa	[w]	spīwan	[o]	kneo	[o]	spēo
j	> [j]	jār	[ij]	zweiio	[j]	sāian	[i]	māri		—

* Non-italicized forms are from Braune ^{11}1963 or ^{14}1965.

THE GERMANIC CONSONANT SHIFT ('GRIMM'S LAW'). The development of these obstruents in Pre-Gmc. can be diagrammed as follows:



The numbers in the following paragraphs refer to the numbers in this diagram.

(1) PIE /b d g gʷ/ > PGmc. /p t k kʷ/. Examples: Lith. *balà*, OE *pōl* 'pool'; Lat. *decem*, Go. *taihun*, OE *tīen* 'ten'; Lat. *genus*, Go. *kuni*, OE *cynn* 'kin'; Skt. *jāni-* (< PIE gʷēni-), Go. *qens*, OE *cwēn* 'woman, queen'.

(2) PIE /p t k kʷ/ > pre-Gmc. /f þ x xʷ/ and then, with the change of initial [x], [xʷ] to [h], [hʷ], PGmc. /f þ x ~ h xʷ ~ hʷ/. Examples: Gk. *poûs*, Go. *fotus*, OE *fōt* 'foot'; Skt. *ṭṛnam*, Go. *þaurnjus* (pl.), OE *þorn* 'thorn'; Lat. *centum*, Go. *-hund*, OE *hund* 'hund(red)'; Lat. *quod*, Go. *hva*, OE *hwæt* 'what'.

(3) PIE /bh dh gh gʷh/ > pre-Gmc. /þ ð g gʷ/. Pre-Gmc. /þ ð g/ then developed stop allophones in certain positions (see below), giving PGmc. /b ~ þ d ~ ð g ~ g/. Examples: Skt. *bhárati*, Go. *bairan*, OE *beran* 'to bear'; Skt. *dhárṣati*, Go. *ga-dars*, OE *dear(r)* 'dare'; Lat. *hostis* (< PIE /ghostis/), Go. *gasts*, OE *giest* 'guest.' Pre-Gmc. /gʷ/ did not survive in PGmc. as a separate phoneme. This is indicated by the fact that it gives PGmc. /g ~ g/ in some instances: Skt. *hánmi* (< PIE /gʷhen-/), PGmc. /gunþa-/ (< PIE /gʷhn-to-/), OI *gunnr*, OE *gūþ* 'battle'; in other instances PGmc. /w/: Skt. *gharmás* (< PIE /gʷhormos/), PGmc. /warmaz/, OI *varmr*, OE *wearm* 'warm'; and, after nasal, PGmc. /gw/: Gk. *omphḗ* (< PIE /songʷh-/), PGmc. /singw-/ (< PIE /sengʷh-/), Go. *siggwan*, OI *syngua*, OFri. *siunga*, OE OS OHG *singan* 'to sing'.

(4) PIE /s ~ z/ > PGmc. /s/. Examples: Lat. *sedeō*, Go. *sitan*, OE *sittan* 'to sit'; Lat. *nīdus* (< PIE [nizdos]), OE *nest* 'nest'.

(5) PIE /p t k kʷ/ > PGmc. /p t k kʷ/ after PIE or Gmc. fricatives. Examples: PIE /sp/ in Lat. *spuō*, PGmc. /sp/ in Go. *speiwand* (3 pl. pres.), OE *spīwan* 'to spew'; PIE /st/ in Gk. *stásis*, PGmc. /st/ in Go. *staþs*, OE *stede* 'stead'; PIE /sk/ in Lat. *scabō*, PGmc. /sk/ in Go. *skaban*, OE *sceafan* 'to shave'; PIE /skʷ/ in /werdh-skʷ-/, PGmc. /skʷ/ in Go.

ga-wrisqand 'they bear fruit'; PIE /pt/ in Lat. *captus*, PGmc. /ft/ in Go. *haft-*, OE *hæft* 'captured'; PIE /kt/ in Lat. *octō*, PGmc. /xt/ in Go. *ahtau*, OE *eahta* 'eight'; PIE /kʷt/ in /sekʷ-ti-/, PGmc. /xʷt/ (or already /xt/ ?) in OS OHG *gi-siht* 'sight'.

(6) Except in the clusters just noted above in (5), the pre-Gmc. voiceless fricatives /f þ x xʷ s/ were voiced to /ƀ ð g gʷ z/ when they followed a syllable which was unaccented according to the PIE accentual system ('Verner's law'). These new examples of [ƀ ð g gʷ] then merged with the already existing [ƀ ð g gʷ] < PIE /bh dh gh gʷh/. The new [z] functioned at first as an allophone of /s/ (giving pre-Gmc. /s ~ z/); but it split from [s] when the Gmc. accentual system replaced the PIE accentual system, thus producing the phonemic opposition /s/ ≠ /z/. Examples of the PGmc. Voiceless = Voiced oppositions resulting from Verner's law: OHG /f/ ≠ /b/ in *heffen* 'to raise' (< PGmc. [háfjanan] < PIE /kópjonom/) vs. *gi-haban* 'raised' (< PGmc. [háƀanaz] < PIE /kəpónos/); OE /þ/ ≠ /d/ in *brōþor* 'brother' (< PGmc. [brṓþōr] < PIE /bhrā́tōr/) vs. *mōdor* 'mother' (< PGmc. [mṓðōr] < PIE /mātṓr/); OHG /h/ ≠ /g/ in *ziohan* 'to pull' (< PGmc. [téoxanan] < PIE /déukonom/) vs. *gi-zogan* 'pulled' (< PGmc. [tóganaz] < PIE /dukónos/); Go. /hʷ/ in *saihvan* 'to see' (OE *sēon*) (< PGmc. [séhʷanan] < PIE sékʷonom/) vs. OE /w/, /g/ in *ge-sewen, ge-segen* 'seen' (< PGmc. [séwenaz, ségenaz] < pre-Gmc. [ségʷenaz] < PIE /sekʷénos/); OE /s/ ≠ /r/ in *forlēosan* 'to lose' (< PGmc. [léosanan] < PIE /léusonom/) vs. *forloren* 'lost, forlorn' (< PGmc. [lózenaz] < PIE /lusénos/).

The above changes account for the PGmc. system of 13 short obstruents (14 if we include the /gʷ ~ gʷ/ of pre-Gmc.):

p ≠ f	t ≠ þ	k ≠ x ~ h	kʷ ≠ xʷ ~ hʷ
b ~ ƀ	d ~ ð	g ~ g	(gʷ ~ gʷ)
	s		
	z		

Resonants. In order to account for the PGmc. nasals (/m n/), liquids (/l r/), and semivowels (/w j/), we need not discuss the complicated nature of the PIE resonants. It is sufficient to note that PIE [m n l r w j] account for PGmc. /m n l r w j/, respectively:
PIE [m] > PGmc. /m/. Cf. Lat. *mare*, Go. *marei*, OE *mere* 'sea'.
PIE [n] > PGmc. /n/. Cf. Lat. *nox, noctis*, Go. *nahts*, OE *neaht, niht* 'night'.
PIE [l] > PGmc. /l/. Cf. Lat. *longus*, Go. *lagg*, OE *lang* 'long'.
PIE [r] > PGmc. /r/. Cf. Lat. *rectus*, Go. *(ga)raihts*, OE *reoht, riht* 'right'.
PIE [w] > PGmc. /w/. Cf. Lat. *videō*, Go. *witan*, OE *witan* 'to know'.
PIE [j] > PGmc. /j/. Cf. Lat. *jugum*, Go. *(ga)juk*, OE *geoc* 'yoke'.

The long consonants of PGmc. In PIE there were, within mor-

phemes, no long consonants. In PGmc., on the other hand, all consonants except /z/ and the labiovelars seem to have occurred long within morphemes. The PIE origin of some of these long PGmc. consonants is clear; but the PIE origin of others–if, indeed, they were of PIE origin and not Gmc. innovations is–obscure.

(1) Long nasals and liquids. These seem to have arisen through various types of assimilation. Examples: Go. dat. *imma* 'him' < PGmc. /immē/ < PIE dat. /esmḗi/, abl. /esmḗd/, cf. Skt. *asmā́i, asmā́d;* OE *þynne* 'thin' < PGmc. /þunniz/ < PIE /tnwis/, cf. Lat. *tenuis;* Go. *fulls* 'full' < PGmc. /fullaz/ < PIE /plnos/, cf. PIE /plēnos/ in Lat. *plēnus*; OE *steorra* 'star' < PGmc. /sterr-/ < PIE /sterno-/, cf. Gk. *astḗr* (but, puzzlingly, unassimilated /rn/ in Go. *stairnons* 'stars', etc.).

(2) Long /ss/. This is clearly derived from PIE /tt/. Example: Go., OE *wissa* 'he knew' < PGmc. /wissē(þ)/ < PIE /wit-tēt/ < /wid-tēt/, cf. Lat. *videō*. Long /ss/ was shortened to /s/ after long vowels and diphthongs: Go. *-weis*, OE *wīs* 'wise' < PGmc. /wīsa-/ < /wīssa-/ < PIE /weit-to-/ < /weid-to-/, cf. Lat. past part. *vīsus* (also with shortening of /ss/ to /s/ after long vowel).

(3) Long semivowels. By regular phonetic development, PIE /w/ and /j/ give PGmc. /w/ and /j/. No satisfactory explanation has as yet been found to account for the fact that in a relatively small number of words they were doubled to PGmc. /ww/ and /jj/.

(4) Long obstruents (other than /ss/). Though the comparative evidence makes it clear that PGmc. must have had long /pp tt kk bb dd gg ff þþ xx/, examples are relatively few and are in general inconsistently attested in the various Gmc. languages. Many words with long obstruents seem to have no cognates outside of Gmc.; and, where they do, no satisfactory explanation for the doubling can be given. For example, PIE /déuk- dóuk- duk-́/ > PGmc. [téox- táux- túg- ~ tóg-] appears clearly in OE *tēon* 'to draw', pret. *tēah*, part. *togen*, OHG *ziohan*, pret. *zōh*, part. *gizogan;* PGmc. /tóg-/ also in OE *heretoga* 'army leader', OHG *herizogo* (modern *Herzog*), OE *togian* 'to tow'. Surely related, but with unexplained long consonants, are ME *tuggen* 'to tug' < PGmc. [túgg-], and OHG *zucchen* 'to jerk' (modern *zucken*) < PGmc. [túkk-]. Many words with long obstruents belong to fairly clear semantic classes: names of animals (OE *catte* 'cat', *dogga* 'dog'), parts of the body (OE *croppa* 'crop', *hnecca* 'neck'), etc. The evidence has been collected in Martinet 1937.

2. Syntagmatic structure

2.1 Initial consonant clusters

As already noted in Tables 1–7, 18 of the 19 consonants of PGmc. (all but /z/) occurred word-initially before vowel, giving the structure #CV. Of these 18 consonants, 11 (all but /kʷ hʷ m n l r j/) also occurred word-initially before consonant plus vowel, giving the structure #CCV. And of these 11, one (/s/) also occurred word-initially before two consonants plus vowel, giving the structure #CCCV. Table 8 gives the examples of #CCV and #CCCV that can be assumed for PGmc.

Table 8 contains three parenthesized forms. Go. /þl-/ in *þlauhs* and a few other forms reflects PGmc. /fl-/; cf. Matzel 1962 and references. Go. *q-* (*qiþan* etc.) and *hv-* (*hveita* etc.) are classified as reflecting PGmc. /kw-/ and /hw-/, respectively, to show the syntagmatic structure that would result if these were considered as PGmc. consonant clusters (/kw-/ and /hw-/) rather than as unit phonemes (/kʷ-/ and /hʷ-/).

Two doubtful Go. forms are omitted from Table 8. Go. *bnauandans* probably reflects PGmc. /bi-nūan-/ rather than /bnūan-/. And Go. *qrammiþa* 'dampness' seems to be a misspelling for **krammiþa*, cf. OI *krammr* 'damp'.

Table 8. Initial consonant clusters*

		#CrV	#ClV	#CwV	#CnV	#CmV
p		OE prættig	OE plagian			
f		freis	flodus		OE fnēosan	
b		briggan	blinds			
t		-triu		twai		
þ		þridja	(þlauhs)	þwahan		
d		drigkan		dwalai		
k		krusts	klismo	(qiþan)	kniwa	
h		hrains	hlaifs	(hveita)	hneiwan	
g		gras	glaggwaba			
s			slepand	swart	snaiws	smalista
w		wraks	wlits			
	#CCV	#CCrV	#CClV			
sp	spinnand	sprauto OFri.	splīta			
st	stains	striks				
sk	skip	OE scrūd				

* Forms cited are from Go. (Schulze 1848) unless otherwise noted.

2.2 Non-initial consonant clusters

PGmc. had a rich system of non-initial consonant clusters, of which only a sampling can be presented here. Table 9 lists all clusters of the type Nasal or Liquid plus Consonant: /mC nC lC rC/; Table 10 lists all

Table 9 Non-initial consonant clusters: Nasal or Liquid + Consonant

PGmc.	/mp/	/mf/	/mb/	/nt/	/nþ/	/nd/	/nk/	(/nx/)	/ng/
Go.	-tramp	fimf	lamb	wintrus	munþ	land	drigkan	fahan	lagg
OI	kleppr	fim	lamb	vetr	munnr	land	drekka	fā	langr
OE	gelimpan	fīf	lamb	winter	mūþ	land	drincan	fōn	lang
OFri.	drempel	fīf	lamb	winter	mūth	land	drinka	fān	lang
OS	krampo	fīf	lamb	winter	mūth	land	drinkan	fāhan	lang
OHG	gelimpfan	fimf	lamb	wintar	mund	lant	trinkan	fāhan	lang
PGmc.	/lp/	/lf/	/lb/	/lt/	/lþ/	/ld/	/lk/	/lx/	/lg/
Go.	hilpan	wulf	silba	salt	-gulþ	skuld	skalk	filhan	-balg
OI	hialpa	ulfr	sialfr	salt	gull	skuld	folk	fela	belgr
OE	helpan	wulf	self	sealt	gold	scyld	folc	fēolan	bielg
OFri.	helpa	wolf	self	salt	gold	skelde	folk	befela	balg
OS	helpan	wulf	self	salt	gold	sculd	folk	bifelhan	balg
OHG	hel(p)fan	wolf	selb	salz	gold	scult	folk	bifelhan	balg
PGmc.	/rp/	/rf/	/rb/	/rt/	/rþ/	/rd/	/rk/	/rx/	/rg/
Go.	wairpan	þarf	-þarba	swart	wairþ	waurd	waurkeiþ	þwairhs	baurg
OI	verpa	þarf	þǫrf	suartr	verþ	orþ	verk	þuerr	borg
OE	weorpan	þearf	þearf	sweart	weorþ	word	weorc	þweorh	burg
OFri.	werpa	thōr	therve	swart	werth	word	werk	thwer	burg
OS	werpan	tharf	tharf	swart	werth	word	werk	thwerh	burg
OHG	wer(p)fan	darf	darba	swarz	werd	wort	werk	dwerh	burg
PGmc.	/ms/	/ns/	/ls/	/rs/	/lm/	/rm/	/rn/	/lw/	/rw/
Go.	amsans	hansa	hals	wairs	hilm	arms	haurn		sparwans
OI	āss (?)	gǭs	hals	ars	hialmr	armr	horn	suala	spǫrr
OE	ōsel	gōs	heals	ears	helm	earm	horn	swealwe	spearwa
OFri.		gōs	hals	ers	helm	erm	horn	swale	
OS		gōs	hals	ars	helm	arm	horn	swala	
OHG	amsala	gans	hals	ars	helm	arm	horn	swalwa	sparo

Table 10 Further non-initial consonant clusters: CC, Cj, Cw

PGmc.	/sp/	/st/	/sk/	/ft/	/fs/	/xt/	/xs/	/zd/	/gd/
Go.		fastan	fiskos	aftana		ahtau	saihs	gazds	gahugd
OI	ǫsp	fastr	fiskr	aptan		ātta	sex	gaddr	
OE	æspe	fæst	fisc	æft	wæfs	eahta	siex	gierd	hygd
OFri.	aspa	fest	fisk	efta		achta	sex	jerde	
OS	aspa	fast	fisk	aftan		ahto	sehs	gerdia	gihugd
OHG		festi	fisk	aftan	wafsa	ahto	sehs	gerta	huct

PGmc.	/pj/	/fj/	/bj/	/tj/	/þj/	/dj/	/kj/	/xj/	/gj/
Go.	gaskapjan-	-hafjan	sibja	-satjan	raþjo	bidjan	-rakjan-	hlahjan-	lagjan
OI	skepia	hefia	sifjar	setia		biþia	rekia	hlæia	leggia
OE	scieppan		sibb	settan		biddan	reċċan	hliehhan	lecgan
OFri.	skeppa		sibbe	setta	rethe	bidda	reza	hlahha	ledza
OS	skeppian		sibbia	settian	reðia	biddian	rekkian		leggian
OHG	scepfen	heffen	sippa	sezzen	redea	bitten	recken	hlahhen	leggen

PGmc.	/zj/	/mj/	/nj/	/lj/	/rj/
Go.	hazjan	gatamjan	-þanjan-	saljan	warjan-
OI		temia	þenia	selia	veria
OE	nerian	temman	þennen	sellan	werian
OFri.	nera	temma		sella	wera
OS	nerian		thennian	sellian	werian
OHG	neren	zemmen	dennen	sellen	weren

PGmc.	/tw/	/kw/(/k^w/)	/xw/(/x^w/)	/rxw/(x^w)	/ngw/
Go.	gatwons	naqaþs	saihvan	fairhvus	siggwan
OI	gata	nøkkueþr	siā	fiǫr	syngua
OE	frætwa	nacod	sēon	feorh	singan
OFri.		nakad	siā	ferch	siunga
OS			sehan	ferah	singan
OHG	gazza	nackot	sehan	ferah	singan

clusters of the type Obstruent plus Obstruent (/CC/), and of the type Consonant plus Semivowel (/Cj Cw/). A number of the columns in these tables deserve special comment:

(a) Table 9, the column (/nx/). All the Gmc. languages show loss of pre-Gmc. nasal before pre-Gmc. /x/, and this change must therefore be ascribed to PGmc. The First Grammarian (cf. Haugen 1950) tells us that this loss of the nasal was accompanied by compensatory lengthening and nasalization of the preceding vowel: *hār* /hãr/ 'shark' < PGmc. /hãxaz/ < pre-Gmc. /hanxaz/ < PIE /kankos/. This is confirmed by the evidence of OE, where the backing and raising of nasalized PGmc. /ã/ (OE *fōn* < PGmc. /fãxanan/ < pre-Gmc. /fanxanan/) parallels the backing and raising of PGmc. /æ̃/ before nasal (OE *mōna* < pre-OE /mān-/ < PGmc. /mæ̃n-/). We may therefore assume for PGmc. three long nasalized vowels which occurred only before /x/: PGmc. /ĩx ãx ũx/ < pre-Gmc. /inx anx unx/.

(b) Table 9, the columns /mf nþ ms ns/. These show the loss of nasal before the remaining voiceless fricatives (together with compensatory lengthening and at least temporary nasalization of the preceding vowel) that is characteristic of the North Sea Gmc. group of languages: OE, OFri., and (in part) OS. OI also shows examples of loss of nasal before the voiceless fricatives /f þ s/. Cf. *fīfl* < /fimflan/ 'giant', *mīl* < /minþl-/ '(horse's) bit', *gǭs* < /gans-/ 'goose'.

(c) Table 10, the columns /Cj/ (/pj/, /fj/, etc.). These show the doubling of consonants before /j/ that is characteristic of the WGmc. group of languages: OE, OFri., OS, OHG. By and large, WGmc. /þ/ (< PGmc. /þ/) and /r/ (< PGmc. /r/, /z/) were *not* doubled before /j/; but cf. OE *sceþþan* 'to injure' < PGmc. /skaþjan-/, and OHG *nerren* 'to save' < PGmc. /nazjan-/ beside OHG *nerien*. By and large, consonants were also *not* doubled before /j/ when they were preceded by long vowels and diphthongs; but there are numerous exceptions in OHG, e.g. modern *heizen* /haitsən/ < OHG *heizen* < pre-OHG /haittjan/ < PGmc. /haitjan-/ 'to heat'. OI also shows doubling of /k/ and /g/ before /j/ after short vowel; cf. OI *vekkia* (beside *vekia*) 'to awaken' < PGmc. /wakjanan/, and OI *leggia* 'to lay' < PGmc. /lagjanan/.

2.3 Positional allophones

In this final section we may return to the consonant system of PGmc. as given at the beginning of section 1.1:

p ÷ f	t ÷ þ	k ÷ x ~ h	k^w ÷ x^w ~ h^w (?)
b ~ ƀ	d ~ ð	g ~ ɣ	(g^w ~ $ɣ^w$)
	s		

	z		
m	n	~	ŋ
	l, r		
w		j	

We have shown (i) that this system can be derived by regular phonetic change from the consonant and resonant systems of PIE; and (ii) that this system is necessary and sufficient to account by regular phonetic change for the consonant systems of the seven oldest recorded Gmc. languages. Voiced labiovelar /g^w ~ g^w/ is parenthesized because it seems to have been a unit phoneme in pre-Gmc. but not in PGmc. The only unclear elements in this system of PGmc. consonants are the voiceless labiovelars /k^w/ and /x^w ~ h^w/: they may well have been the consonant clusters /kw/ and /xw ~ hw/ rather than unit phonemes.

Insofar as the comparative method of reconstruction enables us to determine such matters, 13 of these 19 PGmc. consonants (excluding /g^w ~ g^w/) seem to have had only one allophone each: [p t k f þ s z m l r w j] and the uncertain [k^w]. The remaining six consonants, on the other hand, seem to have had two allophones each: [n ~ ŋ], [x ~ h], the uncertain [x^w ~ h^w], and [b ~ β], [d ~ ð], [g ~ g]. Our final task is therefore that of determining the positions in which these six consonants showed the one allophone vs. the other.

The nasal /n ~ ŋ/ is a rather special case, since here the evidence for positional allophones comes largely from the modern Gmc. languages. For example, in MnE the [n] of *night*, *stone*, etc. vs. the [ŋ] of *drink*, *bring*, etc. suggests that the OE letter *n* represented dental [n] in most positions: *neaht*, *stān*, etc., but that it represented velar [ŋ] before velars: *drincan*, *bringan*, etc. So also with the other modern Gmc. languages. The only old Gmc. language that more or less consistently shows different spellings for [n] vs. [ŋ] is Go. Dental [n] is always written *n: nahts*, *stain*, etc.; but, before velars, velar [ŋ] is generally written *g: drigkan* (also *gg: driggka*), *sagq* (also *gg: gasaggq*), *briggan* (once also *gg: atgagggand*), etc., though there are also occasional spellings with *n: þank*, *bringiþ*, etc. (The use of *g* as a spelling for [ŋ] is of course borrowed from Greek orthography.) Probably Runic *ᛝ* was also generally written before velars, though there are no clearly legible examples extant. For PGmc. we may therefore assume the following distribution of allophones: [ŋ] before velars (and labiovelars), but [n] elsewhere.

The remaining five consonants perhaps provide examples of 'drift' (in the sense of Sapir 1921) in the history of the Gmc. languages. Through the Gmc. consonant shift, PIE [k] and [k^w] seem first to have given pre-Gmc. [x] and [x^w] in all positions; and PIE [bh dh gh] and (through Verner's law) PIE [p t k] seem first to have given pre-Gmc. [β ð g] in all

positions. But then–gradually, and in more and more positions–[x] and [xʷ] became [h] and [hʷ] (or [hw]), and [þ ð g] became [b d g]. The speeds of these various 'drifts' are very different in the various Gmc. languages. For example, as early as the mid 4th century, pre-Gmc. [x] seems to have become Go. [h] in *all* positions (see 1.2.1), but it still survives as [x] in certain positions in MnDu. and Ger., e.g. Du. *nog*, Ger. *noch*, both [nɔx]. Or: as early as the mid 8th century, pre-Gmc. [þ] and [g] had become stops in OHG in *all* positions (see 1.2.7), but they still survive as fricatives in several positions in MnDu. and LGer.

The question which we must now attempt to answer is: How far had these various 'drifts' progressed at the stage which we call PGmc. ? In attempting to answer this question, we must observe a fundamental principle of the comparative method of reconstruction. This method 'assumes and must assume that when several related languages have a common feature this feature is to be ascribed to the parent language unless subsequent study proves this to be impossible' (Sturtevant 1942: § 21). That is to say, if (as is the case) all the oldest Gmc. languages seem to show for example the change [x] > [h] in initial position, then this change in this position must be ascribed to PGmc. This fundamental principle of the comparative method is subject to error from at least two sources. First, it forces us to assume that the proto-language was uniform, whereas our experience with directly observable languages shows that this is seldom if ever the case. Perhaps, then, the change [x] > [h] occurred in some parts of PGmc. but not in others. Second, it forces us to assume that shared innovations must always be derived from a common inheritance, whereas geographical linguistics shows us that they may also spread from one area into another. Perhaps, then, the change [x] > [h] occurred during the PGmc. period only in one geographical area, and only later spread into all other areas. Despite these possible sources of error, however, we must accept the comparative method of reconstruction in toto–with all its limitations–or else not accept it at all. If we do *not* accept it in toto, then we have no basis for rejecting such a reductio ad absurdum as that the entire Gmc. consonant shift occurred independently in each of the oldest Gmc. languages.

Subject to these limitations on the validity of the comparative method, we may now attempt to describe the positional allophones of the remaining five consonants. For the evidence on which our conclusions are based, see Table 1–10 above.

(1) /x ~ h/. All the oldest Gmc. languages seem to agree in showing [h] initially: [#hV #hlV #hrV #hnV]. Accordingly, we may assume for PGmc. the following allophonic distribution: [h] initially, but [x] elsewhere.

Possibly [h] also occurred medially in the environments [VhV VlhV VrhV], since all the oldest Gmc. languages show either [h] or 'zero' (i.e. loss of [h]) in these positions. However, it seems more reasonable to assume [VxV VlxV VrxV] for PGmc. because, after loss of a final vowel, most of the oldest Gmc. languages still show [Vx Vlx Vrx]. Examples: word-final [Vx# Vlx# Vrx#] in OE *scōh, sealh, mearh* 'shoe, willow, horse', < PGmc. [skōxaz salxaz marxaz].

(2) /x^w ~ h^w/. Insofar as this may have been a unit phoneme rather than the cluster [xw ~ hw], it shows the same distribution as /x ~ h/: [h^w] initially, but [x^w] elsewhere.

(3) /b ~ þ/. All the oldest Gmc. languages agree in showing the stop [b] initially, in gemination, and after nasal. Accordingly, we may assume for PGmc. the following allophonic distribution: [b- bb mb], but [þ] elsewhere.

(4) /d ~ ð/. All the oldest Gmc. languages agree in showing the stop [d] initially, in gemination, after nasal, and after /l/, /z/, and /g/. Accordingly, we may assume for PGmc. the following allophonic distribution: [d- dd nd ld zd gd], but [ð] elsewhere.

(5) /g ~ g/. All the oldest Gmc. languages agree in showing the stop [g] in gemination and after nasal. Accordingly, we may assume for PGmc. the following allophonic distribution: [gg ŋg], but [g] elsewhere. Because PGmc. /b ~ þ/ and /d ~ ð/ show stops initially ([b- d-]), special mention must be made of the reasons for assuming that PGmc. /g ~ g/ was initially a fricative ([g-]). First, Lat. *graecus* 'Greek' was borrowed in Go. as *kreks*, in OE as (plural) *crēcas*, in OFri. as *crēc(land)*, and in OHG as (pl.) *chrēchi, chreachi, kriachi*–as if derived from PGmc. /krēk-/. The only likely explanation for this is that pre-Go., pre-OE, pre-OFri., pre-OHG–and hence also PGmc.–had no initial [gr-] but only [kr-] and [gr-]; and that, in borrowing Lat. *graecus*, Gmc. [kr-] was used as the nearest phonetic equivalent of Lat. [gr-]. Second, OE, OFri., OS show [j-] < PGmc. /g ~ g/ initially before front vowels: OE *ġield* (cf. Table 4), OFri. *jeld* (cf. Table 5), OS *geld* (cf. Table 6). Though it is possible that this initial [j-] could have come from the PGmc. initial stop [g-], it seems more likely that it came from the PGmc. initial fricative [g-]. Third, MnDu. and parts of LGer. show initial [g-] < PGmc. /g ~ g/. Though the changes pre-Gmc. [g-] > PGmc. [g-] > modern [g-] are possible, it seems more likely that modern [g-] preserves an old initial fricative: pre-Gmc. [g-] = PGmc. [g-] = modern [g-].

Proto-Germanic Morphophonemics*

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Outline

1. Preliminary remarks about morphophonemics in general . . . 176
2. The treatment of PGmc. morphophonemics 177
3. PGmc. alternation patterns 178
   3.1 Comment on two general phenomena 178
   3.2 Alternation based on nasalization 183
   3.3 Alternation based on voice (Verner's law) 184
   3.4 Alternation based on voice and spirantization 186
   3.5 Alternation based on voice, spirantization, stridency, and length 188
   3.6 Alternation with zero (Ø) 190
   3.7 Alternation with geminate 192
   3.8 Umlaut alternation 194
   3.9 Ablaut alternation 198
4. Rule ordering and rule formulation 208
5. The matrix 208

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1. Preliminary remarks about morphophonemics in general

1.1 Morphophonemics poses questions of definition and integration into a larger framework. Its range of application has been differently defined depending upon the schools of linguistic thought; even within a given school definitions have varied. Some introductory remarks are necessary to account for the method followed here.

1.2 Structuralism (further referred to as 'traditional structuralism') and in particular the Prague school has introduced into linguistics a distinct concept of *morpho(pho)nology*, later renamed *morphophonemics* by American scholars, but no consensus has been reached as to what is subsumed under the term. Especially subject to difference of interpretation are the so-called morphologically conditioned alternations (cf. E *sing* ~ *sang*) and difference of opinion exists as to whether such alternations are to be integrated into morphophonemics or morphology proper; in this respect an additional source of disagreement results from the fact that a morphologically conditioned alternation may be redundant as well as relevant (Kuryłowicz 1968:67ff.). It is not surprising that criticism has been voiced within traditional structuralism itself (Martinet 1960:96; 1965), questioning the necessity, the usefulness and the range of application of a distinct morphophonemic section.

1.3 Viewing language as a generative process as in the generative-transformational theory (further referred to as 'generative theory' or 'generative model') yields a different approach. In this model rules connect underlying representations with their phonetic manifestations and thus the requirement for an autonomous phonemic and morphophonemic discussion disappears. Although there is no complete consensus, it seems that morphologically conditioned alternations like ablaut (E *sing* ~ *sang*) are now usually treated not by phonological rules but by so-called readjustment rules (Chomsky–Halle 1968:209, 238 and, e.g., Wurzel 1970: 15ff.). Such rules produce underlying representations which feed into the phonological component. Together with this goes the question of the place and the definition of morphology. It appears that in this respect the generative theory has to cope with some problems similar to those of traditional structuralism.

1.4 If morphophonemics or morphophonology is to be delimited, and especially distinguished from morphology proper, it seems profitable to use the notions 'change' or 'replacement' (expressed in an alternation) for morphophonemics and 'addition' for morphology. Within morphophonemics two types of alternations can be distinguished, *phonologically* and *morphologically* conditioned ones, although the two types are not mutually exclusive. It should be noted that phonologically conditioned

alternations include also surface-phonetic, allophonic variation. As a consequence of the attribution of the notion 'addition' to morphology proper, morphologically conditioned alternations result from a replacement, which can be represented as X → Y where X does not equal zero. In a broad sense, derivational patterns (e.g. alternation with geminate, 3.7) may also be included.

2. The treatment of Proto-Germanic morphophonemics

2.1 The description concerns a reconstructed language with all the implications of this, for example: (1) it may be necessary to illustrate a PGmc. alternation by doublets from an Old Gmc. language or even by forms from different Old Gmc. languages; (2) a problem of reconstruction generally has its repercussion in the description.

As far as it is applicable, each treatment considers both aspects, the synchronic and the diachronic, the latter being subsidiary to the former. As a rule, the synchronic treatment refers to the stage of the language after the accent shift and the PGmc. umlaut operation (the so-called second period, van Coetsem 1970:15). There is one exception. For ablaut (3.9) the period after the *ă-ŏ*-merger (the so-called *e-a*-period, van Coetsem 1970:16) offers a convenient starting point to the discussion, because a strong systematization of the ablaut in the system of the strong verb occurred precisely in that period.

2.2 Constraints on the treatment

2.2.1 Because of the space limitation: (1) only a selection of alternations is presented here; (2) the treatment is in some cases shorter than is perhaps desirable; (3) the number of examples illustrating the alternation patterns is restricted.

2.2.2 A *separate* morphophonemic treatment resulting from the mainly traditional structural framework of the book does not favor a consistent application of a generative model. As a consequence of such a separate treatment, the different sections cannot be really integrated into a whole including phonology and morphology (see also 2.2.3 and 2.3), so that the present contribution has only a preparatory and more or less provisional character. However, a number of notions of the generative theory, especially the rule notion, are used here.

Adequate rule formulation with a feature notation as advocated and applied in the generative theory appears to be a useful heuristic device that necessitates great explicitness and accuracy of expression, although it is certainly susceptible of improvement; there is, moreover, no com-

pletely defined standard for rule writing. Yet, rule formulation not seldom brings out generalities which are usually only implicit and not directly apparent in more traditional descriptions.

A treatment with rules implies a so-called base form (base alternant), or underlying representation. It may be difficult to establish what the base form is. In general, the notions 'markedness,' 'predictability' and 'simplicity and generality' may help determine it. It should be kept in mind that simplicity as a criterion for linguistics has not yet been clearly and exhaustively defined, either as to its nature or to its applicability. Still other considerations are necessary and in some cases the choice of the base form may even be arbitrary (morphophonemic indeterminacy).

2.2.3 Another limitation concerns the use of explicit rule formulation. In the diachronic treatments, this is usually omitted. In the synchronic parts, such rules are only stated when they concern a change which forms the basis for a systematically treated alternation, provided the materials allow such rule formulation. It should be clear that such rules presuppose rule ordering and data from other parts of the grammar to which reference is made without any further statement (cf. 4).

2.3 The classification of the alternation patterns is more practical than systematic. The alternations are presented in sections, which are *generally* built up according to the following basic scheme: statement of the alternation; examples of the alternation; discussion and explicit statement of the rule underlying the alternation, with occasional reference to other rules; origin of the alternation; further remarks, cross references, etc.

2.4 For the feature notation, see the matrix and the accompanying comments (5).

3. Proto-Germanic alternation patterns

3.1 Comment on two general phenomena

It seems desirable to first comment on two phenomena which transcend the morphophonemic treatment, but which also have a bearing on it and are reflected in alternations.

3.1.1 Morpheme length

(1) It is important to state for PGmc. the maximal length of a monosyllabic morpheme or morpheme section from its syllabic peak to its right boundary, as in **ǥr(eiþ)-*, Go. *greipan*, **b̆(end)-*, Go. *bindan*, etc. This maximal length may be tentatively and informally represented as

xxx or as x̄x, x̄ being equivalent to xx, as in **k^{w}(ǣn)-*, OS *quān* 'wife', **l(ǣt)-*, ON *lāta*. By using one single symbol x instead of e.g. V or C, attention is drawn to the number of elements and not to what they are, which seems irrelevant here. The phenomenon is taken care of by a general rule, the nature of which is a debatable question. In one view, it may be considered a morpheme structure rule which can also function as a phonological rule (Stanley 1967:402), but given the theory of markedness, it may be regarded as a phonological rule (Chomsky–Halle 1968:402ff.; Schaefer 1971:7ff.). The rule may be reflected in the alternation x*ss* ~ xx*s* (x̄*s*) discussed in 3.5.1. Some examples in the daughter languages like Go. *kriustan* (of uncertain origin) and OHG *eiscōn*, which seem to reflect PGmc. xxxx and consequently to contradict the statement made above, may in fact be illustrations of the formula xxx. In original (IE, pre-Gmc.) compounds of the type root + suffix, it is not always easy to determine whether in PGmc. the last x was already part of the root or still part of the suffix. It is also quite possible that the last x could stand for clusters like *st* and *sk;* the stronger unity of such clusters is also apparent in their evolution from IE to Gmc. and in their treatment in the reduplicating class.

(2) The above-mentioned rule is a PGmc. synchronic one. Diachronically, it is the outcome of the development of *tt* to *ss* or *s* (3.5.2) and also of the treatment of the IE so-called long diphthongs: long vowel + tautosyllabic resonant was reduced either by shortening of the long vowel or by deletion of the resonant; long vowel + heterosyllabic resonant remained unchanged (for further discussion, van Coetsem 1970: 42). It seems that this phenomenon was originally based on the syllable. The reduction of the long diphthongs appears to have been operative in all of the non-Iranian IE languages.

(3) Independently of their origin, alternations considered below illustrate either internal variation of the maximal length (e.g. 3.5, 3.7.4) or alternation of the maximal length with a nonmaximal (e.g. 3.7.2).

3.1.2 Remarks on syllabicity

(1) As part of the syllabicity phenomena of PGmc., there was an alternation pattern *i* ~ *y* and *u* ~ *w* (cf. Go. *nasida* ~ *nasjan*). In traditional structural studies, it is an issue whether or not PGmc. *i*, *y* on the one hand and *u*, *w* on the other manifested an *allophonic* variation (see bibliography in 3.1.2,4, fourth paragraph); if they did, the alternation pattern is not handled in morphophonemics in a traditional structural treatment. The analysis is based on segmental complementarity and phonetic similarity. PGmc. *i*, *y* on the one hand and *u*, *w*

on the other may very well have demonstrated a total segmental complementarity since the cases in which Go. departs from it appear to be typical for this language (e.g. Go. *juk* vs. *iup* and PGmc. **iuk-* *[yuk-] vs. **eup-*). Complementarity thus being assumed and considering the criterion of phonetic similarity (the only distinguishing feature being syllabicity), each pair, *i*, *y* and *u*, *w*, must be regarded in PGmc. as allophones of the same phoneme. Reference to the development of [m̥], [n̥], [l̥], [r̥] to *um/mu*, *un/nu* etc. (see also 3.1.2,4) in order to posit *i* and *y*, *u* and *w* as different phonemes on the grounds of system pressure appears to be hardly relevant, since the development in question did not affect the distribution of [i, y] and [u, w] at all. This means that [i], [u] on the one hand and [y], [w] on the other can be derived by rule from the same base forms or underlying representations, which for reasons indicated in 3.1.2,4, third paragraph, and also on the grounds of markedness may be considered *i* and *u*. It should be noted that the variations [i, y] and [u, w] are in several respects different from other allophonic variations. Hierarchically, [i] and [y], [u] and [w] are distinguished by a more fundamental feature ([syllabic] being a major class feature) than e.g. [ƀ] and [b] ([continuant] being a manner of articulation feature). For the classification of features see Chomsky-Halle 1968:299ff., 354.

(2) There were in PGmc. general syllabicity rules (3.1.1,1), which governed the distribution of syllabic and nonsyllabic segments and thus also took care of the distribution of syllabic [i], [u] and nonsyllabic [y], [w]. Such rules, not being the subject matter of this contribution, are not discussed here (cf. 2.2.3). However, by comparing [i ~ y], [u ~ w] with other cases of the alternation syllabic ~ nonsyllabic, it is clear that e.g. PGmc. [+ id-] ~ [+ ya-] (+ indicating a formative boundary) as reflected in Go. *nasida* ~ *nasjan*, was handled by such a syllabicity rule.

In this context [i, y] and [u, w], especially when occurring in so-called diphthongs, require more specific treatment, particularly in view of their interaction with umlaut alternations (3.8) and the 'Verschärfung' (3.7.3). It is a fact that the second element of the PGmc. diphonematic diphthongs (clusters) was in certain positions affected by umlaut (3.8.2) and had in that case the value of a vowel. Consequently, PGmc. *ei*, *eu*, etc. were as to syllabicity not comparable to PGmc. *em*, *en*, *el*, *er*, etc. (in contrast with IE *ey*, *ew*, *em*, *en*, *el*, *er*, etc.). The second element of the PGmc. diphthongs was a vowel when it was followed by an obstruent (Ob.), a nasal (Nas.) or a liquid (Liq.). Before a glide (Gl.) or a vowel (V) the second element of the diphthongs was a glide. Since the distribution of [i], [u] and [y], [w] depended on the immediately following segment,

this following segment had to be specified first for syllabicity, either by allowing the syllabicity rule to apply cyclically (if only one rule was involved) or by internal ordering of the syllabicity rules (if more than one rule was involved). In the second element of the diphthongs, then, PGmc. showed a clear case of complementary distribution:

$$V \left\{ \begin{matrix} \left\{ \begin{matrix} i \\ u \end{matrix} \right\} \left\{ \begin{matrix} \text{Ob.} \\ \text{Nas.} \\ \text{Liq.} \end{matrix} \right\} \\ \left\{ \begin{matrix} y \\ w \end{matrix} \right\} \left\{ \begin{matrix} \text{Gl.} \\ V \end{matrix} \right\} \end{matrix} \right\} \text{ or: } [+ \text{ syllabic}] \left\{ \begin{matrix} \left\{ \begin{matrix} i \\ u \end{matrix} \right\} [+ \text{ consonantal}] \\ \left\{ \begin{matrix} y \\ w \end{matrix} \right\} [- \text{ consonantal}] \end{matrix} \right\}$$

This treatment of [i, y] and [u, w] can be formulated in the following rule, *i*, *u* being considered the base alternants:

(1) [+ syllabic] → [— syllabic] / [+ syllabic]——[— consonantal]

The rule states that after a vowel and before a glide or vowel, *i*, *u* become *y* and *w* respectively.

Subsequently in the Old Gmc. languages there were specific modifications of the above rule. For example, Go. *taujan* (as against *tawida*) may reflect pre-Go. *[tawya-] ([Vwy]), but also and more probably *[tauya-] ([Vuy]); for this cf. MDu. *tooyen*, MnDu. *tooien*. In the latter case [Vi] and [Vu] have been extended to the position before glide, when this glide and the second element of the diphthong were distinguished by the feature [back]. On the other hand, the combinations [Vww], [Vyy] were retained in the early evolution of the NEGmc. languages (ON and Go.), to judge by the phenomenon of 'Verschärfung,' whereas they were replaced by [Vuw], [Viy] in WGmc. (3.7.3).

An alternation like Go. *keinan* ~ *uskijan-* appears to be a direct reflex of PGmc. [ei] + Nas. ~ [ey] + V and is in line with what has been stated above. Furthermore, it yields evidence for a possible interpretation of PGmc. *ī* (at least the one from earlier diphthong) as a sequence of two short vowels after umlaut had operated (3.8.2) and in the alternation pattern [ii] ~ [iy].

(3) For Go. *ei* ~ *ji* as in *sokeis* ~ *hafjis*, PGmc. [+ iyi-] ~ [+ yi-] are posited. The sequences are obviously in accordance with the general syllabicity rules; only the specific environments of the alternants have to be specified: *basically* PGmc. -xxC [+ iyi-] ~ -xC [+ yi] (C = [+ consonantal] or possibly [— syllabic]); Go. also shows the *-ei*-alternant after polysyllabic forms. Cf. 3.1.2,4, fourth paragraph.

(4) In a diachronic perspective, it may be said that PGmc. maintained at least the outline of the general syllabicity rules of IE. A modification in these rules concerns the above-described distribution pattern of [i, y]

and [u, w] in PGmc., if the corresponding IE clusters were in all cases indeed combinations of vowel + glide, as in usually assumed (Lehmann 1952:10–1; also Meillet [8]1937:106).

Another modification concerns less the syllabicity pattern itself than the feature make-up of the nasals and liquids. These were in IE in accordance with the syllabicity rules either [— syllabic] = [m], [n], [l], [r] or [+ syllabic] = [m̥], [n̥], [l̥], [r̥]. In the evolution of the Gmc. parent language, the latter developed to *um/mu*, *un/nu*, etc., and the nasals and liquids became in all positions [— syllabic].

The two above-mentioned modifications, which were probably interrelated, point to an important change in the basic structure of the phonological system. To make this clear, it is necessary to refer to the foundations of the IE phonological system. Traditional structuralism has described IE phonology on the basis of three segmental categories: (1) vowels = [+ syllabic]; (2) consonants = [— syllabic]; (3) resonants, each of them having a syllabic allophone = [i], [u], [m̥], [n̥], [l̥], [r̥] and a nonsyllabic allophone [y], [w], [m], [n], [l], [r]. Such a three-way distinction is well-founded and corresponds to a division in three natural sound classes, based on the features [syllabic] and [sonorant]: (1) vowels = $\begin{bmatrix} + \text{ syllabic} \\ + \text{ sonorant} \end{bmatrix}$; (2) resonants = $\begin{bmatrix} — \text{ syllabic} \\ + \text{ sonorant} \end{bmatrix}$; (3) consonants = $\begin{bmatrix} — \text{ syllabic} \\ — \text{ sonorant} \end{bmatrix}$. In PGmc. (second period, van Coetsem 1970:15) the original [m̥], [n̥], [l̥], [r̥] had become *um/mu*, *un/nu*, etc., these sequences being the outcome of a diachronic rule. The *u* resulting from this development was subject to umlaut just like *u* in other positions. Also, it seems that PGmc. *i*, *u* occurred independently, i.e. in cases in which the language did not have morphologically related forms with diphthongs (this was probably the case with PGmc. **skip-*). All this points to a PGmc. situation which resulted from a breakdown of the IE resonant subsystem and a transition to a system of two main segmental categories based on the feature [consonantal]: (1) vowels = [— consonantal], incorporating also *i*, *u* with their respective allophones *y*, *w;* (2) consonants = [+ consonantal], incorporating also *m*, *n*, *l*, *r*. In this perspective it is quite natural to consider *i*, *u* the base alternants in the alternations [i ~ y] and [u ~ w] (cf. 3.1.2,2).

PGmc. [+ iyi-] ~ [+ yi-], referred to in 3.1.2,3, is assumed to be a reflex of Sievers' law ([iy], [uw], [m̥m], [n̥n], [l̥l], [r̥r] in noninitial position after a long root ending in a nonsyllabic). For a discussion in a traditional structural framework see Lehmann 1955:355–66; Marchand 1956:285–7; Lehmann 1961:71–3. For Sievers' law see now Nagy 1970.

(5) Even if, by traditional structural standards, *i* and *y*, *u* and *w* had become distinct phonemes in PGmc., the number of functional contrasts was very small. Most, if not all, of the distributional facts can be taken care of by rule.

3.2 Alternation based on nasalization

The sequences *in*, *an*, *un* occurred in PGmc. as nasalized, allophonic [ĩ], [ã], [ũ] before *x*. Most probably only after PGmc. did these nasalized variants shift to *ī*, *ā*, *ū*. If this assumption is correct, the alternation is not handled in a traditional structural treatment of PGmc. morphophonemics.

Reflexes of the PGmc. alternation pattern are found in *i* ~ *ī*, *a* ~ *ā*, *u* ~ *ū*, of the Old Gmc. languages, as is attested in Go. *juggs* (positive) ~ *juhiza* (comparative) (or pre-Go. *u* ~ *ū* if length was no longer distinctive in Go.), and OHG *gifangan*, *gihangan* ~ *fāhan*, *hāhan*. The alternation is specific and clearly distinct from ablaut (3.9). Although the alternation *i* ~ *ī* shows similarity of alternants with the first ablaut series (cf. OHG *rītan* ~ *ritum*, *giritan*), it is different from this ablaut series in other respects.

In the Old Gmc. languages, however, the change did affect specific examples of ablaut alternation. In the strong verb a shift from the third ablaut series to the first occurred, as in Go. *þeihan*, *þaih*, *þaihum*, *þaihans*, OHG *dīhan*, *dēh*, *digum*, *gidigan*, OE *þeon*, *þāh (þeah)*, *þigon*, *þigen* (but original *geþungen* 'excellent' as a participial adjective) from PGmc. **þinx-*, **þanx-*, **þung-*, **þung-*. In the nominal morphology, the original ablaut alternation was for obvious reasons kept intact in such cases, as is illustrated by Go. *leihts*, OHG OS *līht* (PGmc. **linx^{w}t-* **[līxt-]* (cf. 3.6.1,2) 'light, not heavy'; cf. also Seebold 1967:115–6), OHG OS *lungar* (PGmc. **lung-*) 'fast, strong', which represent different lexical items and consequently do not manifest morphophonemic alternation.

Specification of the vowels *i*, *a*, *u* is traditional but superfluous since before nasal + C (C = [+ consonantal]) only *i*, *a*, *u* occurred. Also, since before *nx* only short vowels occurred (3.1.1), there is no need to specify length. Length need not be mentioned in the rewrite portion of the rule either, since it was present only as a redundant feature of nasalization. It became distinctive only after the nasalization disappeared. Thus, the nasalization rule in question is to be formulated as follows:

(2) [+ syllabic] n → [+ nasal] Ø / —— x
1 2 1 2

This rule, stating that short vowels + *n* are realized as nasalized vowels before *x*, resulted in an alternation [$\tilde{V}$(x)] ~ [V(ng)], which in synchronic and diachronic order followed the alternation *x* ~ *g* in the clusters *nx* ~ *ng*. The alternation was the result either of the operation of Verner's law (3.3) or of the devoicing of *g* to *x* (3.4.1). Rule 2 thus operated on the output of this devoicing rule, so that the latter was in a feeding or additive relationship to the former (Kiparsky 1965; 1968; Chafe 1967).

3.3 Alternation based on voice (Verner's law)

3.3.1 The alternation pattern nonvoiced ~ voiced in *f*, *þ*, *x*, *s* ~ *ƀ*, *đ*, *g*, *z* (Verner's law) was in its final, PGmc. stage morphologically conditioned. Its occurrence demonstrated certain distributional limitations which were either specific to the alternation pattern itself (as the fact that the nonvoiced alternant is the only one found in word initial position, see 3.3.3) or reflected the operation of general rules of the language (cf. e.g. rule 4). The nonvoiced segment appears to be the base alternant. The labiovelars offer several problems and are here left out of discussion (van Coetsem 1970:60,62 with bibliography).

The conditioning of this alternation must be formulated for each distinct morphological application. The extent to which lexicalization had occurred depends on how far the proto-language had progressed towards the situation found in the daughter languages. The strong verb in the majority of the Old Gmc. languages preserves rather well the PGmc. pattern of morphological conditioning of the alternation nonvoiced ~ voiced, with the nonvoiced alternant occurring in the inf., the pres. and the pret. sg., the voiced one in the pret. pl., the whole pret. opt., and the past part., OS *heffian*, *hōf* ~ *hōƀun*, *gihaƀan*, OE *weorđan*, *wearđ* ~ *wurdon*, *worden*, OHG *ziohan*, *zōh* ~ *zugum*, *gizogan*, ON *kjōsa*, *kaus* ~ *kørom*, *kørenn*. Go. does not show any alternation in these cases; it is assumed that this is due to leveling or generalization of the nonvoiced alternant within the paradigm, which apparently resulted in rule loss and lexicalization of relic forms (cf. *-filhan*, *-falh*, *-fulhum*, *-fulhans*, but *fulgins* as a participial adjective).

The nominal morphology of the Old Gmc. languages reflects the alternation pattern more sporadically. However, examples like OE *deađ*, OS *dōth* (noun) ~ OE *dead*, OS *dōd* (adjective), Go. *juhiza* (comparative) ~ *juggs* (positive) and *huhrus* (noun) ~ *huggrjan* (verb) point to the fact that the alternation pattern was also well represented in PGmc. nominal morphology. Internal comparative evidence also occasionally testifies to the existence of a former alternation; for example OHG *haso*, OE *hara*

show that in each of these languages only one of the alternants was generalized throughout the paradigm.

Since the rule which handles Verner's law is morphologically conditioned, all cases in which it applies in the grammar should ideally be completely specified. Here, however, no attempt is made to come to such an itemized statement; the rule simply includes the general statement 'in specified morphological environments.' The fact that the voiced alternant is not found initially (with possible exceptions, which then have to be mentioned, see also 3.3.3) is taken care of by the use of [+ segment]:

(3a) [— voice] → [+ voice] / [+ segment] [+ $\overline{\text{continuant}}$] in spec. morph. env.

The rule states that except in initial position *f*, *þ*, *x*, *s* are represented as *ƀ*, *đ*, *g*, *z* in specified morphological environments. A limitation on this rule concerns its nonapplication or reversal in certain voiceless environments (see e.g. rule 4). The rule as it is formulated is in a synchronic perspective only the morphophonemic aspect of a general rule which states that in specified morphological environments only the voiced continuants *ƀ*, *đ*, *g*, *z* are found; this rule applies redundantly to voiced nonsonorant continuants and may be formulated as follows:

(3b) $\begin{bmatrix} - \text{ sonorant} \\ + \text{ continuant} \end{bmatrix}$ → [+voice]/[+segment]——in spec. morph. env.

There is no need to specify in this rule that [ƀ], [đ], [g] ([+ continuant]) were in allophonic variation with [b], [d], [g] ([— continuant]), since this is not specifically bound to voiced segments which resulted from Verner's law. PGmc. [ƀ, b], [đ, d], [g, g], whatever their origin (IE *p*, *t*, *k*, *bh*, *dh*, *gh*), are traditionally assumed to have shown already in the proto-language an allophonic variation continuant ~ noncontinuant. The distribution is traditionally described as noncontinuant [b], [d], [g] after homorganic nasal and in geminates, and continuant [ƀ], [đ], [g] in other positions (Streitberg 1896:116), the initial position being then a matter of discussion. This presentation may be at least in some respects objectionable; for example, the geminates referred to are most probably not PGmc. but 'einzeldialektisch' (3.7.4,1). More recent research agrees that continuants and noncontinuants were in complementary distribution, but states that each pair of allophones had a more or less specific distributional pattern (Moulton 1954:37ff.; 1972: § 2.3). In both the diachronic and synchronic perspectives, it appears that the continuants are primary (in a synchronic grammar the base forms). This allophonic rule (or these allophonic rules) can be applied to the

output of rule 3b, so that the latter is in a feeding or additive relationship to the former; cf. Gmc. *nd* (Go. *nimand*) < *nđ* < *nþ* < IE *nt* (Lat. *amant*).

3.3.2 To account for the origin of the PGmc. alternation pattern nonvoiced ~ voiced discussed above, it is generally assumed that prior to the Gmc. accent shift, the Gmc. reflexes of IE *p, t, k, s* developed a combinatory, allophonic split nonvoiced ~ voiced depending on accentual conditions and segmental environment; for the accentual conditions cf. Skt. *vártami, vavárta, vavṛtimá, vṛtanáḥ* with OE *weorđan, wearđ* ~ *wurdon, worden* (see however Bennett 1972: § 1.2). In a rule-oriented approach such as the generative the shift from allophonic variation to the morphologically conditioned alternation described in 3.3.1 is primarily regarded as a change of conditioning (King 1969:48–9 and Voyles 1967:643).

3.3.3 It has been assumed above that the initial position was not affected by the operation of Verner's law, although this is a matter of discussion, especially with regard to well-known cases like the PGmc. proclitic **ga-* as against Lat. *co-*. If such examples offer reliable etymologies, a distinction between 'phrase bound' and 'word bound' initial position may have to be considered (see e.g. Russer 1930:79–80; Moulton 1954:39; Hammerich 1955:26; cf. also Bennett 1972: § 1.1 ff., in particular § 1.10.1).

3.4 Alternation based on voice and spirantization

3.4.1 This section presents a PGmc. phonologically conditioned alternation pattern, which concerns the labial and velar orders: *p, b̆* and *k, g̑* alternate with *f* and *x* respectively before voiceless dentals. Although the same obviously applies to labiovelars, they are left out of the discussion.

The alternation pattern is reflected in the following examples: (1) Go. *gaskapjan* ~ *gaskafts*, OHG *scepfen* ~ *giscaft*, Go. *þagkjan* ~ *þahta*, OHG *denken* ~ *dāhta*, ON *þekkja* ~ *þātti* (*tt* from *ht*, the usual form is *þekta*); (2) Go. *giban* ~ *fragifts*, OHG *geban* ~ *gift*, ON *gefa* ~ *gipt*, Go. *þaurb-* (possible example of operation of Verner's law) ~ *þaurfts*, OHG *durfan* ~ *durft;* (3) Go. *briggan* ~ *brahta*, OHG *bringan* ~ *brāhta*, OE *bringan* ~ *brōhte*, Go. *gaggan* ~ *-gahts;* (4) OE *migan* ~ *meox, mixen;* (5) for the labiovelar order cf. PGmc. **ling^{w}an-* ~ **ling^{w}* + *t-* **[*lĭxt-*] (adjective), OHG *gilingan, līht*.

A feature analysis shows that the alternation pattern affects two features, [continuant] and [voiced]. There was in the language a general rule which handled devoicing in the appropriate segmental environments

and which also applied here; cases like *ð* ~ *f* (e.g. Go. *giban* ~ *fragifts*) are in fact completely handled by this devoicing rule. As far as it affects the alternation being discussed here, the following formulation of this rule would be adequate:

(4) [— sonorant] → [— voiced] / —— [— voiced]

The rule applies redundantly to voiceless segments and states that nonsonorant segments are voiceless before voiceless segments.

What remains to be formulated is a spirantization rule to account for cases like *p* ~ *f* (e.g. Go. *gaskapjan* ~ *gaskafts*):

$$(5)\ \begin{bmatrix} -\text{ sonorant} \\ -\text{ coronal} \end{bmatrix} \rightarrow [+\text{ continuant}] \,/\, \text{——} \begin{bmatrix} +\text{ coronal} \\ -\text{ voiced} \end{bmatrix}$$

The rule applies redundantly to continuants and states that nonsonorant labials and velars are represented as continuants before voiceless dentals. Consequently, the rule assumes: (1) that it is not applicable to dentals; (2) that it applies only before dentals. These assumptions are both doubtful. First, although one may not find examples of dentals which follow the (synchronic) rule, it is unlikely that one can find examples that violate it. Secondly, if there are voiceless obstruents other than dentals in the second position, the rule would still be applicable (cf. also initial *sp*). Eliminating [coronal] as a feature in this rule makes it possible to simply collapse rules 4 and 5, which yields a rule accounting for all alternations mentioned above:

$$(6)\ [-\text{ sonorant}] \rightarrow \begin{bmatrix} -\text{ voiced} \\ +\text{ continuant} \end{bmatrix} \,/\, \text{——}\ [-\text{ voiced}]$$

Since no morpheme boundary restriction is made, this rule is based on the assumption that there were no nonsonorant geminates at this stage of the language (cf. 3.7.4); to account for such geminates, some condition would have to state that sequences of identical segments do not follow the rule.

3.4.2 To account for the origin of the alternation pattern, the following is posited: IE *pt* (also from *bt*) > Gmc. *ft*, IE *kt* (also from *gt*) > Gmc. *xt*. It appears that there was a general devoicing rule in IE which not only took care of *bt*, *gt* to *pt*, *kt* (cf. e.g. Lat. *regere* ~ *rectus*) but also made *tt* of *dt* (cf. Skt. *ad-* ~ *atti*). This was already recognized in the neogrammarian tradition and stated as media + tenuis becomes tenuis + tenuis (Krahe-Meid ⁷1969,I:109). In Gmc. the devoicing rule was retained and a spirantization rule was added, although the parallelism of the dental order with the other orders was broken (3.5, 3.6.1).

Concerning the IE aspirated (voiced) stops followed by nonaspirated

ones, in particular by *t*, the development has been assumed to be different on the basis of examples like Skt. *lubdhá-* from IE **lubh + to-* (Bartholomae's law). This demonstrates a change that perhaps has not affected the whole IE area or that may have been counteracted by morphophonemic relationship. At any rate, judging from cases like Go. *gaggan* ~ *-gahts*, Bartholomae's law did not apply in Gmc. The example of Go. *gahugds* 'conscience', OE *gehygd*, etc. which has been adduced to show the difference of treatment between originally aspirated and nonaspirated (voiced) stops followed by *t* is not conclusive. First, there is no certainty that *g* of **xug-* goes back to IE *gh*, and secondly, there is no need to derive PGmc. **gaxugđ-* as a compound directly from IE. It may well be a Gmc. formation of **xug* + *đi*-suffix, in which case rule 6 was not applicable. For a discussion see Bennett 1966:733ff.; Bammesberger 1969; cf. also Meid 1964–65:238–9; Krahe–Meid ⁷1969, I:110; 1967: 177–8).

3.4.3 The marker of the 2 sg. pret. ind. was *t* in PGmc. (Go. ON *namt*) and scholars are either uncertain of its origin or consider it a development from IE *th* (Skt. *-tha*) in roots ending in *f*, *s*, *x* (Go. *gaft*) with subsequent spread to other roots; thus, in these the original *þ* would have been replaced by *t*. However, even the existence of IE aspirated voiceless stops is debatable. The fact that in a case like Go. *halpt* rule 6 is not applied may be the result either of paradigmatic leveling (then apparently only occurring within certain paradigms) or of another innovation. The Old WGmc. languages also demonstrate an innovation, as can be seen in e.g. OHG *nāmi;* in these languages the formation with *t* is found only in the preterit-presents (OHG *skalt*). The problem of the *t* is complicated, but thus far there does not seem to be any evidence forcing to a restriction of rule 6.

3.5 Alternation based on voice, spirantization, stridency, and length (or gemination)

3.5.1 The following alternation pattern concerns the dental order and is morphologically conditioned: *t*, *þ*, *đ* alternate with *ss* or *s;* this alternation only applies in morpheme-final position. Phonological conditioning is involved as far as the alternation *ss* ~ *s* is concerned.

Here, too, the morphological conditioning must be specified for each application. One of these is reflected in Go. *wait* (preterit-present, 1 sg. pres. ind.) ~ *waist (wais + t)* (2 sg. pres. ind.). The marker of the 2 sg. pres. ind. in the preterit-presents, *t*, was (re)introduced after the dental element of the former marker of the 2 sg. had developed with the preceding dental to *ss* (3.4.3, 3.5.2). The *s* in the alternation *s* ~ *ss*, Go.

waist (wais+t) (pres.) ~ *wissa* (pret.), reflects deletion as a result of application either of the morpheme length rule mentioned in 3.1.1 or of rule 8. Cases like Go. *qast* (vs. *gaqiss*) ~ *qiþan*, *kaupast-* ~ *kaupatjan* show a reduction of *ss* to *s* before *t* which is not required by the morpheme length rule and which is usually considered a result of analogy; however, this reduction demonstrates simple application of rule 8. Another morphological conditioning (verb ~ derived nominal form) is reflected in the following examples: ON *sitan*, OE *sittan*, OS *sittian* ~ ON OE OS *sess*, ON *hlaða* (possible example of operation of Verner's law) ~ *hlass*, Go. *standan* (Verner's law) ~ *-stass*.

The deletion of one *s* (or reduction of *ss* to *s*), being handled either by the morpheme length rule or rule 8, does not have to be mentioned in the following rule. The mentioning of the morpheme-final position does appear to be necessary. If the geminate may be indicated by the feature [long] and if the different morphological applications are again grouped in a general statement, the rule can be formulated as follows:

$$(7)\quad \begin{bmatrix} -\text{ sonorant} \\ +\text{ coronal} \\ -\text{ strident} \end{bmatrix} \rightarrow \begin{bmatrix} -\text{ voiced} \\ +\text{ strident} \\ +\text{ long} \end{bmatrix} / \text{——} + \text{ in spec. morph. env.}$$

The rule states that in specified morphological environments *t*, *þ*, *đ* are respresented as *ss* in morpheme-final position.

3.5.2 To explain the origin of the alternation pattern the following is to be taken into account: IE *tt* (3.4.2) > Gmc. *ss* or *s* before a syllabic and after a short or long vocalism respectively, Go. *-weis* (IE **weyd* + *to-*) vs. Go. *-wiss* (IE **wid* + *to-*). For the 2 sg. ind. see 3.4.3, 3.5.1. The development is pre-Gmc., being found also in Italic and Celtic, as the following examples show: Lat. *sessum* (IE **sed* + *to-*), *visum* (IE **weyd* + *to-*), OIr. *fiss* 'to know'; cf. Meid 1964–65:227.

In similar conditions IE *ts* (3.4.2) seems to have yielded the same result as IE *tt* in Gmc.: ON *vīsa*, OE *wīs*, OS *wīsa* ('manner, melody etc.'), IE **weyd* + *sā-* (cf. also Hirt 1931:121). This points to an historical development of the dentals closely corresponding in environment to the development of the labials and velars mentioned in 3.4.

3.5.3 One may like to consider for PGmc. a general rule encompassing the labial, dental and velar orders in the two phenomena: (1) *p* and *k* → *f* and *x* respectively (3.4); (2) *t* → *ss* (3.5). Yet, however desirable it may be to bring out spirantization as a common feature to the two phenomena, a synchronic approach to PGmc. requires on different grounds a specific treatment for each of them. First, they demonstrate an important difference of conditioning; secondly, in the dental order the resulting continuant is not *þ* but *s*, which in addition to being a

continuant is also a strident; finally, there is a morpheme boundary in *ft, xt (f + t, x + t)* but in *ss* alternating with *s* the original morpheme boundary is obscured; cf. Go. *wait* ~ *wais* + *t* (from *waiss+t*) as against Go. *giban* ~ *fragifts (-gif+t-)*.

3.6 Alternation with zero (Ø)

3.6.1 (1) In the following alternation pattern there might be doubt as to the morphological composition of the word and consequently as to the alternants themselves. In the solution discussed first, the alternation is a phonologically conditioned one; it is the result of deletion, the base containing the segment which is to be deleted. The dental order is considered first. It may be said that *t, þ, đ* alternate with zero (Ø) before *s* followed by a consonantal segment.

The following examples illustrate the alternation: Go. *blotan*, OHG *blōzan* ~ Go. *-blostreis*, OHG *bluostar*, ON *bīta* ~ *beiskr* 'sharp' and *beisl* 'rein, bridle', Go. *beitan* ~ *beist* 'leaven', Go. *beidan* ~ *-beisns*, Go. *-biudan* ~ *-busns*, ON *fœđa* ~ *fōstr*, OHG *(h)ladan* ~ *(h)last;* cf. also OHG *rosamo* 'redness, rust' (IE **rudh* + *s* + *men-*) beside *rotamo* (IE **rudh* + *men-*) and OS *rotōn* 'to rust'. This represents a deletion which also applied to *ss* before a consonantal segment, as can be seen in cases like Go. *qast* discussed in 3.5.1.

The deletion rule applicable here may thus be formulated as follows:

$$(8)\quad \begin{bmatrix} - \text{ sonorant} \\ + \text{ coronal} \end{bmatrix} \rightarrow \emptyset \;/\; \underline{\quad} \begin{bmatrix} - \text{ voiced} \\ + \text{ strident} \end{bmatrix} [+ \text{ consonantal}]$$

The rule states that nonsonorant dentals are deleted before *s* followed by a consonantal segment. For example, Go. *blotan* ~ *-blostreis* reflects a PGmc. alternation **þlōt-* ~ **þlō+str-* with deletion of *t*. Such an analysis does not offer any complication, since *st, sk, sn, sm, sl* represent normal initial distributions in PGmc., also in suffixes and suffix formations; cf. Krahe–Meid 1967:118–9, 129, 163ff.,194–5, 256, in particular for dental before *st* see Meid 1964–65:226ff.

Contrary to what is proposed above, one might assume that e.g. in PGmc. **þlōstr-*, **þeisn-*, the morpheme boundary came after *s*, **þlōs+tr-*, **þeis+n-*, in which case an alternation dental ~ *s* would result. These cases would then be illustrations of the spirantization phenomenon treated in 3.5.1; cf. also 3.5.3. Yet, this solution complicates the description. Even if it is possible to state the presence of some phonological conditioning in such cases (cf. however Go. *beidan* ~ *-beisns* with *wato* 'water', *watnam*, dat. pl., Marchand 1957:52ff.), the morphological environments would also have to be specified. On the other hand, the

deletion solution discussed above requires only a simple environment and is therefore preferable.

(2) It appears that the alternation pattern discussed above is only one example illustrating a more general deletion rule. A PGmc. deletion of the velars and possibly the labials appears to be bound to a number of restrictions, however. A deletion which obviously reflects a pattern in PGmc. (3.6.1,3) is found in cases where the velars are preceded by *r*, as in the Go. example *waurstw* ~ *waurkjan*. But Go. does not always yield unambiguous evidence, as is shown in the examples *waurk-* (to *waurkjan*) + *ti*-suffix in *uswaurts* (nom., 2 Cor. 9,9B) but *uswaurhtais* (gen., 2 Cor. 9,10B) and *frawaurhts*. When *r* did not precede, Go. shows no sign of deletion, e.g. *maihstus*, *haifsts*, *wahstus* and *wahsjan*. Examples like OHG *wast* ~ *wahsan* appear to reflect a later, non-PGmc. rule (cf. already Streitberg 1896:143–4). Materials concerning the labials and velars before *st* are listed in Meid 1964–65:240ff. Deletion of the labial element of labiovelars in clusters, specifically before *t*, may also be considered PGmc. (3.6.1,3); see the example mentioned in 3.4.1 and cf. Go. *saihvan*, OHG *siht*, and Go. *leihts* (with *h* from x^w before *t*, 3.2), but *sahvt*, 2 sg. pret. ind. of *saihvan* as the result either of paradigmatic leveling (then apparently only occurring within certain paradigms) or of another innovation. Because of the many points at issue, especially concerning the chronology, it does not seem desirable so far to try to formulate a PGmc. deletion rule also including the velars and the labials.

(3) Considering the origin of the alternation pattern in question, some cases like Go. *blotan* ~ *-blostreis* are supposed to be the result of the development of *tt* (3.4.2) to *ss* (3.5.2) before *r* with epenthetic *t* and deletion of one *s* (3.6.1): *ttr* > *ssr* > *str*. However, such cases are also explained as the outcome of *t* + *tr (tro)* with a pre-Gmc. development of *s* between the two *t*'s and subsequent deletion of the dental of the root as has happened in Lat. *(claudere* ~ *claustrum);* cf. Meid 1964–65: 237–8; Krahe–Meid 1967:182–3. Other cases like Go. *-biudan* ~ *-busns* are generally assumed to reflect a regular PGmc. deletion of the dental of the root before *sn;* Krahe–Meid 1967:118–9. In a diachronic perspective such a deletion is probably to be considered the result of assimilation. In several cases there is uncertainty and difference of opinion as to the origin. Besides the references already mentioned in 3.6.1,1 and 3.6.1,3 see the older literature, e.g. Streitberg 1896:143–4; Boer ²1924: 132; Hirt 1931:124, 131.

As has become clear from the preceding discussion, PGmc. may have retained a previously existing deletion rule. More examples confirm this. For deletion of the velar cf. Go. *waurstw* ~ *waurkjan* (3.6.1,2) with OHG *forsca* 'question', *forscōn*, IE **prk*+*sk-*, Lat. *poscō* as against OHG

frāhēn, frāgēn; cf. Krahe–Meid 1967:194–5, 256–7. For deletion of the labial element in labiovelars cf. Go. *saihvan,* OHG *siht* also mentioned in 3.6.1,2, and Lat. *coquere* ~ *coctus, relinquere* ~ *relictus.*

3.6.2 Deletion may also be a consequence of accentual conditions. Well-known is the case of the nonstressed position. For example, *u* between a nonsyllabic segment and *i*V, this being realized as [yV], is deleted in Go. *gahardjan* as against *hardus;* cf. however Go. *skadus* ~ *skadwjan* and also *manwus, -manwjan,* which probably show morphophonemic leveling. It is very questionable whether such a deletion was PGmc.

Also, ablaut illustrates an IE accentually conditioned alternation with zero (normal grade ~ zero grade), which developed into a morphologically conditioned alternation in PGmc. (3.9).

3.6.3 For deletion (or reduction) as a result of application of the rule discussed in 3.1.1 see 3.5.1.

3.6.4 For alternation *n* ~ Ø as a consequence of nasalization and compensatory lengthening of the short vowel preceding see 3.2.

3.7 Alternation with geminate

3.7.1 The geminates under discussion are nonsyllabics. Whether the geminate represented a cluster of two identical segments or a single long segment is an open question (van Coetsem 1970:65), which should be considered in a broad theoretical framework also involving length in syllabics (3.8.2). Here no claim is made for either view and the traditional term 'geminate' (noun) is maintained. It should be noted that the term as it is used may label the historical outcome of a gemination (doubling) or of an assimilation. Distributionally, it seems that the geminate occurred in morpheme-final position.

3.7.2 (1) PGmc. had geminates of nasals or liquids *(mm, nn, ll, rr)* especially in verbs of the third ablaut series of the strong conjugation (*e*-group) (Go. *rinnan*) and also in their morphologically related forms (productive, synchronic derivatives), nouns (Go. *winna*) and verbs (causative-iterative verbs, e.g. Go. *-rannjan*). Such geminates alternated with corresponding single nasals or liquids *(m, n, l, r)* in other morphologically related forms (Go. *runs*). There is doubt as to whether the same applies to the geminates in preterit-presents and verbs of the so-called seventh class of the strong conjugation (third series of the *a*-group) (Go. *kann,* OHG *fallan*). The alternation pattern was morphologically conditioned, but it is as yet impracticable to establish clearly the respective general environment of occurrence of the nongeminate and the geminate and consequently to determine which was the base alternant. It is,

however, useful to point out that such an environment included some aspects of expressivity ('expressive' in a large sense, i.e. as opposed to 'neutral') in the morphologically related forms (derivatives, e.g. causative-iterative verbs) of the third ablaut series but not in this series itself. If such expressivity was indeed specific for the geminate in the alternation nongeminate ~ geminate of the morphologically related forms, there is reason to regard the nongeminate as the base alternant at least in that case.

The alternation is reflected in Go. *runs* ~ *rinnan* (cf. *-rannjan*), ON *bruni* ~ *brinna* (cf. *brenna*), OHG *swilo* ~ *swellan;* cf. ON *hjal* 'talk', *hjala* 'to talk' and OHG OS *hellan* 'to sound'.

(2) Concerning the origin of these geminates, some cases make it plausible to assume that they originated from the corresponding simplex + another segment. Some assimilations of this type may have taken place already in IE, but some appear to be younger. To illustrate the latter, the example of *nn* is revealing since in some instances it clearly goes back to *n* + *w* (cf. OHG *dunni*, Lat. *tenuis*, Go. *minniza*, Lat. *minus*, Go. *rinnan*, Skt. *rṇvati*) and appears to be representative of a more general trend (e.g. *ll* from *l* + *n*). Cases like Go. *manwus*, *-manwjan* (this possibly to be compared to Lat. *manus*) seem to be einzeldialektisch; cf. 3.6.2. In several examples of the above characterized verbs (3.7.2,1), it seems that geminates such as *nn*, continuing *n* (root V*n*) + pres. tense suffix *w*, expanded over the whole paradigm (verbal root V*nn*) and also over the derivatives. This occasionally produced an alternation of *nn* (of the younger root V*nn*) with *n* (in archaic derivatives of the original root V*n*); it is also conceivable that the assimilation to *nn* occurred after the paradigmatic expansion of *nw*. For discussion of the whole question see Kuryłowicz 1957:133–4, Seebold 1966:273ff.

3.7.3 There seems to have been in PGmc. a morphophonemic alternation [u] (probably from earlier [w]) ~ [ww] (*u* ~ *ww* in NEGmc. and *u* ~ *uw* in WGmc.), [i] (probably from earlier [y]) ~ [yy] etc., as is reflected by e.g. Go. *twaim*, ON *tveim(r)*, OHG *zweim* vs. Go. *twaddje*, ON *tveggja*, OHG *zweio* (*zweiio* Is.) (cf. 3.1.2,2). The conditions of occurrence of the geminate and the base alternant are difficult to determine. Also, the origin (cluster or single segment) and the evolution of the geminates are debated issues. For a short survey of the question of the so-called 'Verschärfung' see van Coetsem 1970:73–4; recent work: Lindeman 1964; Kuryłowicz 1967; Polomé 1970c; Tanaka 1970.

3.7.4 (1) A morphologically conditioned alternation pattern nongeminate (obstruent) ~ geminate (double or long stop), in many cases serving to convey a semantic contrast neutral ~ nonneutral (expressive), concerns the labial, dental and velar orders. Examples chosen from the

velar order are: *k* ~ *kk*, OHG *brechan* ~ *brocchōn*, noun *brocchō*, *x* ~ *kk*, OHG *ziohan* ~ *zocchōn;* for *g* ~ *kk* cf. Go. *bilaigon*, OHG *lecchōn*, OS *likkon*. The alternation is not treated systematically here, since it is very likely that such geminates and the resulting alternations are einzeldialektisch and not PGmc.; they are indeed not found in Go. (cases like *twaddje*, *atta* and *smakka* are different). See Marchand 1957b:52ff.; Kuryłowicz 1957:131ff., especially 133, fn. 4; cf. however Moulton 1954: 34–45; 1972: §1.1.

(2) The origin (and spread) of such geminates, in verbs and nouns, is also a debated question. The old and still widespread view that PGmc. *pp*, *tt*, *kk* developed from IE *b*, *bh*, *p* etc. + *n* is not convincing. Other explanations have been advanced, e.g. (1) expressivity; (2) morphological gemination (Kuryłowicz 1957); (3) phonesthemic function (Marchand 1957b). Besides Kuryłowicz, Marchand and the older work of Martinet 1937 see e.g. Wissmann 1932, Fourquet 1954:21ff.; Hammerich 1955:174ff.; Seebold 1966; Krahe–Meid 1967:243.

3.7.5 For *ss* ~ *s* see 3.5.

3.8 Umlaut alternation

3.8.1 As a result of the so-called umlaut operation affecting the vowels *i*, *e*, *u*, there were in PGmc. alternations between *i* and *e*, *u* and *o*, both clearly based on a distinction in one feature, namely [high]. It seems that these alternations were at least partially phonologically conditioned, and the question whether or not morphological conditioning was already involved cannot be settled. An occurrence constraint resulted from the fact that before nasal + nonsyllabic only *i*, *u* and not *e*, *o* were found.

In traditional structural studies, it is an issue whether *i* and *e* were one or two phonemes in PGmc. after umlaut had operated (see the bibliography in 3.8.3), whereas *u* and *o* are unanimously considered two allophones of the same phoneme. The problem is typical for the approach. It seems that a majority regards *i* and *e* as two phonemes. If this opinion is held, there is in traditional structural theory a difference of status between *i* ~ *e* on the one hand and [u] ~ [o] on the other. Within the approach used here, however, their obvious connection and parallelism constitute sufficient justification for their being handled together (Halle 1959:22–3).

Even if *i* and *e* were two allophones of the same phoneme and provided that umlaut was a general trend in PGmc. and affected vowels other than *i*, *e*, *u*, *o*, the restriction to these in the present discussion is justified on the grounds that, in contrast with the other vowels, they were

similarly restructured over the whole of the Gmc. area; this restructuring had a 'common' Gmc. origin. There is, however, a difference of conditioning between NWGmc. (umlaut and consonantal influence, the latter apparent in the fact that *i*, *u* and not *e*, *o* occurred before nasal + nonsyllabic) and Go. (consonantal influence alone). Because this was not put in the proper perspective, it has even led to the conclusion that umlaut was not PGmc. but einzeldialektisch. The interference of intermediate consonantism directs the attention to the more general phenomenon of sequential relationship, umlaut being a relation of vowel to vowel or glide, and consonantal influence a relation of vowel to the immediately following consonantism. The conclusion drawn here is that the two phenomena, umlaut and consonantal influence, both being PGmc., interfered with each other's action, with the result that the generalization of one of them occasioned the disappearance of the other; in such a way, Go., having generalized consonantal influence, has ruled out umlaut (van Coetsem 1968).

The discussion about the status of PGmc. *i* and *e* within traditional structuralism is partly the result of reconstruction problems, i.e. the difficulty of determining in an exact way: (1) whether or not there was a PGmc. *u*-umlaut; (2) what the changes were in nonstressed position. It results also from a different evaluation of some data. All this has led to apparently irreconcilable opinions and a hardening of the positions. There appears to be agreement about the fact that *e*, *a*, *o* (length being unspecified) were *a*-umlaut factors (opening effect) and also that *i*, *y* were *i*-umlaut factors (closing effect), but the question is whether or not *u* had a closing effect; obviously *w* was not umlaut operative and functioned as an intermediate segment. Even if there was *u*-umlaut in PGmc., there may or may not have been total complementarity of *i* and *e*, and consequently no certain conclusion about their phonological status can be drawn. If there was no such umlaut in PGmc., there was clearly no complementarity between *i* and *e*, and they were different phonemes.

The whole question takes on a new perspective if one looks at it not from the standpoint 'once a phoneme, always a phoneme' but from the standpoint of 'phonemic indeterminacy' as discussed by Haugen 1969.

The Old Gmc. languages often demonstrate the result of leveling of one of the alternants and lexicalization. Some of them, especially OHG, partially reflect the original alternations. Examples in the OHG verb are: *nimis* (2 sg. pres. ind.), *nimit* (3 sg. pres. ind.) ~ *nemamēs* (1 pl. pres. ind.), *butun* (1 pl. pret. ind.) ~ *gibotan* (past part.), but *snitum*, *gisnitan*, which have been explained in different ways (cf. van Wijk 1936:50ff. and bibliographical references in 3.8.3). In the OHG nominal paradigm leveling mostly obliterated the original alternation through

generalization of the vocalism of the nom. sg., e.g. sg. *holz*, pl. *holzir*, *loh*, *lochir* (but also *lucher*, *luhhir*); the alternations may sometimes only be reflected in doublets *scif*, *scef*, or be recognizable on the grounds of comparative evidence, e.g. OHG *quec*, OE *cwic*. They are, however, well reflected in derivational patterns like noun ~ adjective, e.g. *erda* ~ *irdin* (with leveling also *erdin*), *holz* ~ *hulzin* (with leveling *holzin*), or masc. noun ~ derived fem. noun ('Movierung'), e.g. *got* ~ *gutin* (with leveling *boto*, *botin*).

Concerning the rule formulation, it is clear that the umlaut rule interacted with the constraint or rule stating that only *i* and *u* and not *e* and *o* occurred before nasal + nonsyllabic. Since this may also be considered a morpheme structure rule or condition, it seems justified to leave it out of the following rule formulations, and in line with what is stated in 2.2.3, even to omit an explicit statement of it. However, if it seems desirable to mention this constraint explicitly in connection with the umlaut rule, this can easily be done by saying that C_1^n (= intermediate consonantism) in the umlaut rule cannot stand for nasal + nonsyllabic. Concerning another matter, as has been remarked above, there is no way of knowing whether the phonological conditioning already showed exceptions in PGmc. This consideration is consequently left out of the discussion. If there was no *u*-umlaut, the rule, which is both diachronic and synchronic, may be formulated as follows:

$$(9a)\quad \begin{bmatrix} +\text{ syllabic} \\ -\text{ low} \\ -\text{ long} \end{bmatrix} \rightarrow \underset{1}{\begin{Bmatrix} [+\text{ high}] \\ [-\text{ high}] \end{Bmatrix}} \Big/ \text{——} \; C_1^n \begin{bmatrix} -\text{ consonantal} \\ \underset{1}{\begin{Bmatrix} +\text{ high} \\ -\text{ back} \end{bmatrix} \\ [-\text{ high}] \end{Bmatrix}} \end{bmatrix}$$

The rule states that *e* with *i*-umlaut factors becomes *i*, and *i*, *u* with *a*-umlaut factors become *e*, *o*. In the case of *i* and *e*, the question as to which is the base alternant has to be established for each specific case.

If there was *u*-umlaut, the diachronic rule formulation is:

$$(9b)\quad \begin{bmatrix} +\text{ syllabic} \\ -\text{ low} \\ -\text{ long} \end{bmatrix} \rightarrow [\alpha\text{ high}] \Big/ \text{——} \; C_1^n \begin{bmatrix} -\text{ consonantal} \\ \alpha\text{ high} \end{bmatrix}$$

For this rule as well as for 9c a condition stating that a *w* belongs to the intermediate consonantism is necessary. The synchronic reflex of 9b may be differently formulated; it is as follows, if it is assumed that *i*, *u* are the base alternants:

$$(9c)\quad \begin{bmatrix} +\text{ syllabic} \\ -\text{ low} \\ -\text{ long} \end{bmatrix} \rightarrow [-\text{high}] / \text{——} \; C_1^n \begin{bmatrix} -\text{ consonantal} \\ -\text{ high} \end{bmatrix}$$

The rule states that before *a*-umlaut factors *i*, *u* become *e*, *o* respectively.

3.8.2 It may be assumed that *i*, *e*, *u* were likewise affected by umlaut in the PGmc. diphonematic diphthongs *ei*, *eu*, *ai*, *au*, the evidence being based mainly on *eu*. A distinction between *ei* and *eu* on the one hand and *ai* and *au* on the other has to be made.

(1) OHG provides clear evidence for the alternation *iu* ~ *eo* as well as for its leveling (cf. 3.8.1). The OHG (OFra.) verb shows clear examples, e.g. *biutis*, *biutit* ~ *beotamēs*. The alternation *iu* ~ *eo* undergoes leveling in the OHG nominal paradigm, generalizing the vocalism of the nom. sg., but is easily recognizable in derivatives, as in noun ~ adjective, e.g. *deota* ~ *diutisk* (also with leveling, *elidheodīgūn* Is.). It should be noted that the grapheme *eu* is also found in early documented comparative material, e.g. in the Old Futhark and in the OHG tradition. The alternation *ii (ī)* ~ *ee (ē)* is sporadically reflected in doublets (OHG *stīga*, *stiega*) or is recognizable through comparative evidence, e.g. OE *wīl*, ON *vēl*, ON *tīrr*, OHG *zēri;* for more examples see Lehmann 1952:66ff.; van Coetsem 1956:27–8; cf. also the survey in van Coetsem 1970:56–7.

As to the umlaut reflexes, both twofold and threefold representations have been advocated for *eu* in PGmc: (1) *eu* ~ *iu* ~ *eo;* (2) *iu* ~ *eo;* the same may be postulated for *ei:* (1) *ei* ~ *ii* ~ *ee;* (2) *ii* ~ *ee*. An original threefold representation accounts for the presence of the grapheme *eu* in the early documented comparative material. In the same material *iu* and *eo* are found as unambiguous umlaut reflexes (*i* ~ *e*, *u* ~ *o*, 3.8.1). In the threefold representation of *eu (eu* ~ *iu* ~ *eo)*, each segment in the diphthongs is represented by only two alternants, *i* and *e*, *u* and *o*. The same is true for *ei*, in which case the two alternants are *i* and *e*, for both segments.

There is a distinction between *ei* and *eu*. In the case of *eu*, umlaut operated on *e* and *u*, *e* → *i* : *iu* and *u* → *o* : *eo;* the first and second segments in *iu* and *eo* are distinguished by the feature [back]. With *ei*, umlaut affected *e* and *i*, *e* → *i* : *ii* and *i* → *e* : *ee;* the first and the second segments in *ii* and *ee* are identical. The phonic similarity of the component segments in the alternants *ei* ~ *ii* ~ *ee* in contrast with *eu* ~ *iu* ~ *eo* is undoubtedly a cause for the difference in the subsequent evolution of *ei* and *eu*. In contrast with *eu*, *ei* disappeared, which is most probably connected with the integration of *ii* and *ee* into the long vowel system. This system itself consisted of vowels which were either unities (*ī*, *ē* etc.)

as has been usually assumed in former research, or combinations of short vowels, also called geminates (*ii*, *ee* etc.) (for the discussion of the different views see Crossgrove 1962:108ff.; cf. also 3.1.2,2). In the latter case one may wonder why the long vowels did not react to umlaut in the same way as the corresponding short vowels, unless precisely the 'doubleness' may be considered sufficient justification. Whatever the reason, in contrast with the short vowel system, the PGmc. long vowel system does not show any tangible reaction (producing distinctivity) to umlaut. Therefore, *ii* or *ī* and *ee* or *ē* from *ei*, when integrated into the long vowel system, no longer stood in any connection with umlaut similar to the corresponding short vowels, and consequently were subject to (further) morphological (paradigmatic) reordering and leveling; cf. van Coetsem 1962.

An original twofold representation *ii* ~ *ee* and *iu* ~ *eo* is understandable if PGmc. *i* and *e* were allophones of one phoneme. In such a case not the disappearance of *ei* but the presence of the grapheme *eu* in the early documented material poses a problem, unless one assumes a third possibility, namely a threefold representation in the case of *eu (eu* ~ *iu* ~ *eo)* and a twofold one in the case of *ei (ii* ~ *ee)*.

(2) *ai* and *au* must also have been affected by the umlaut operation and since only the second segments alternated (3.8.1), for each a twofold representation resulted, namely *ai* ~ *ae* and *au* ~ *ao*. Subsequently, these alternants went separate ways; cf. van Coetsem 1968:523–4.

3.8.3 Earlier research has extensively studied the umlaut mechanism in its origin and development. For a survey: van Wijk 1936:47ff.; Sonderegger 1959; some research contributions: Twaddell 1948; Marchand 1957a; Antonsen 1961; 1964:177ff.; 1965:23ff.; Wienold 1967; van Coetsem 1968; for the directly related question of the PGmc. vocalic system: Trnka 1936; Kuryłowicz 1952; Antonsen 1965:19ff.; Benediktsson 1967; van Coetsem 1970:39ff.; Antonsen 1972. For the question of whether PGmc. *i* and *e* were one or two phonemes and the problem of *u*-umlaut in traditional structuralism: Marchand 1957a; Lehmann 1961:70–1; Antonsen 1964:183; 1965:27; Beeler 1966:473–4; Benediktsson 1967:192ff.; cf. now Haugen 1969.

3.9 Ablaut alternation

3.9.1 An exhaustive analysis of this topic is impossible here. Recently, however, the PGmc. ablaut has been dealt with repeatedly and often extensively in its most systematic aspect, the strong verb, both within the generative approach (Motsch 1967b) and the traditional structural approach (van Coetsem 1963 [²1970]; 1970; cf. also Stutterheim 1960).

Also, ablaut has always been regarded as one of the show-pieces of Gmc. linguistics and has therefore been treated very comprehensively and with a large amount of examples in the standard handbooks; to these one can refer for details and materials. The following discussion can thus be restricted to some fundamental points.

In a general way the ablaut alternation patterns in the Old Gmc. languages display their strongest systematization and greatest productivity in verbal categories like the strong verb (Go. *greipan* ~ *graip* ~ *gripum, gripans*, etc.), the causative verb (Go. *frawardjan* ~ *frawairþan*), the inchoative-passive *-nan*-verb (Go. *-bundnan* ~ *bindan, -bruknan* ~ *brikan*). Nominal ablaut demonstrates less patterning, at least in the Old Gmc. languages. A more or less special case is that of the numerous formations from the ablaut series of the strong verb (see the different handbooks and Wissmann 1932; 1938; Hinderling 1967). In the following only the ablaut alternation in the strong verb is considered.

3.9.2 The well-known traditional classification of the PGmc. strong verb in six ablaut series and a reduplicating class is in great part an inventory, although the relevance of the ablaut alternation and the root morpheme structure is implicitly recognized in it. The so-called reduplicating class has reduplication in the pret. forms in Go., but has in the same function some form of ablaut in the NWGmc. area (Go. *haitan, haihait*, OHG *heizan, hiaz*). On structural grounds a rearrangement of the six ablaut series and the reduplicating class into two groups, an *e*- and an *a*-group, has been proposed. This classification requires that in comparison with the previous sections an older period of the language, namely the *e*-*a*-period, be considered. As far as needed for the description, some adaptations have then to be made. For the *e*-*a*-period the symbols $\bar{e}$, $\mathring{a}$, $\bar{\mathring{a}}$ are used (van Coetsem 1963 [²1970]); they correspond to $\bar{æ}$, *a*, $\bar{o}$ of the period after the PGmc. umlaut had operated, to which the other sections and the matrix refer (5, 2.1). The *e*- and *a*-groups can be schematically represented by a set of reconstructed examples as follows:

Table 1

e-group				*a*-group			
Present	Preterit		Past participle	Present	Preterit		Past participle
	Singular	Plural or Optative					
(1) *greip-	~ *gråip	~ *grip-,	*grip-	(1) *xåit-	~ red./abl.		~ *xåit-
(2) *þeuð-	~ *þåuð	~ *buð-,	*buð-	(2) *åuk-	~ ,,		~ *åuk-
(3) *xelp-	~ *xålp	~ *xulp-,	*xulp-	(3) *xåld-	~ ,,		~ *xåld-
(4) *nem-	~ *nåm	~ *nēm-	~ *num-	(4) } *fār-	~ *fār-		~ *fār-
(5) *geb-	~ *gåb	~ *gēb-	~ *geb-	(5) ∫ *gråb-	~ *grāb-		~ *gråb-

This represents a situation found in the final stage of the *e-a*-period, namely the stage before umlaut operated and after the following developments had taken place: (1) the *ă-ŏ*-merger (begin of the *e-a*-period), which occasioned a trend to systematize verbs with *å* in the root of the pres. according to the patterning of strong verbs with *e* in the root of the pres. In turn the former appear to have influenced the structure of the latter; (2) the breakdown of the IE resonant subsystem ([m̥], [n̥], [l̥], [r̥] go to *um/mu*, *un/nu*, etc., which may be placed later in time than the *ă-ŏ*-merger on the basis of areal linguistic considerations) and the reinterpretation of the glide elements of diphthongs as *i* and *u* in underlying representations; 3.1.2,2, 3.1.2,4; (3) the extension of *ē* from the pret. pl. ind. and pret. opt. of series 5 to the corresponding categories of series 4. This development probably followed the one mentioned in 2; the preterit-presents of series 4 have *u* and not *ē* (e.g. Go. *skulum;* Kuryłowicz 1956:310; Fourquet 1962:62). See also 3.9.5, 3.9.6,1.

The integration of the *e-* and *a*-groups in one single system accounts nicely for the synchronic and diachronic facts. The classification is clearly based on a combination of: (1) the morphological categories involved; (2) the ablaut alternations; (3) the segments of the root morpheme structure following the ablaut alternations (in abbreviation here called: 'root segments').

The morphological categories and their patterning in relation with the ablaut alternations are shown in table 1. Within each of the two groups this patterning remains the same throughout the *e-a*-period. Between the *e-* and the *a*-group the morphological patterning is partly the same (pres. ~ pret.) and partly different. For example, there is an ablaut alternation between the pret. sg. and the pret. pl. of the ind. in the *e*-group but not in the *a*-group. This is an important and characteristic difference between the two groups.

In connection with the ablaut alternations and the root segments two stages must be considered in the *e-a*-period, one after the *ă-ŏ*-merger and before the other changes mentioned above (early stage), the other one after those changes (late stage).

3.9.3 Early stage

(1) In comparison with the root segments, the ablaut alternations are of primary relevance and furnish the paramount distinguishing factors. The *e-* and *a*-groups had their characteristic alternations, originally subdivided into two alternation patterns each, which subsequently developed into more alternation patterns. Referring to five series while describing the original situation is clearly anachronistic, but is done on

practical grounds. It seems that even at the end of the *e-a*-period, there were no more than four alternation patterns in the *e*-group, since the so-called series 1 and 2 appear to have shown only one alternation pattern throughout that period. Within these series it is unnecessary to specify [i, y] (in series 1) or [u, w] (in series 2) as syllabic or nonsyllabic, since these are predictable and derivable by rule from the same underlying representations or base forms (3.1.2). They are part of the root segments, since they are constant elements within each alternation, which is precisely a characteristic of the root segments. In series 1, 2 of the *e*-group the ablaut alternation pattern is thus *e* ~ *å* ~ Ø ~ Ø. The same is true for series 3, 4 of the *e*-group in the early stage. In the *a*-group, series 1, 2, 3 have originally only the reduplication as a characteristic of the pret. Ablaut results here from a later development, although it may already have been present in this early stage (3.9.4,2); it is, however, not mentioned in tables 2a and 2b. Series 4, 5 of the *a*-group present only one alternation. There are consequently patterning differences between the *e*- and *a*-groups, which in the subsequent development were partly erased. The following table presents the original ablaut situation in the strong verb (with inclusion of the reduplicating class):

Table 2a

e-group		*a*-group	
(1), (2), (3), (4)	e ~ å ~ Ø, Ø	(1), (2), (3)	å ~ red. ~ å
(5)	e ~ å ~ ē ~ e	(4), (5)	å ~ ā̊ ~ å

A feature analysis of this is complicated by the fact that it is uncertain whether the vowel system was at this stage triangular or quadrangular (van Coetsem 1970:44), and whether the feature distinguishing between *e* and *å* was [back] or [low]. For the *e-a*-period it will be assumed that it was [back]. Using the features distinguishing between the ablaut alternants, table 2a can be presented as follows:

Table 2b

e-group		*a*-group	
1), 2), 3), 4)	[— back] ~ [+ back] ~ ø, ø	(1), (2), (3)	[+ back] ~ red. ~ [+ back]
5)	[—back] ~ [+ back] ~ [—back, +long] ~ [— back]	(4), (5)	[+ back] ~ [+back, +long] ~ [+ back]

(2) Although the ablaut alternations alone result in the analysis presented in tables 2a and 2b, within each of the two groups the root

segments contribute to the identification of the alternation patterns. Furthermore, whereas the ablaut alternations are the distinguishing factors between the *e*- and the *a*-group, the root segments are the unifying elements between the two groups. There is no need to distinguish in the following table between the syllabic and nonsyllabic variants of nasals and liquids; similarly, the syllabic and nonsyllabic variants [i, y] and [u, w] are grouped in the symbols I and U respectively. The distribution of the root segments corresponding to the situation presented in tables 2a and 2b is then as follows:

Table 3a

e-group		*a*-group		
(1) (2) (3) (4)	[I] [U] {Nas. Liq.}	(1) (2) (3)	[I] [U] {Nas. Liq.}	{Nas. Liq. Ob.}
(5)	Ob.	(4) (5)	{Nas. Liq. Ob.}	

This can be simplified using features:

Table 3b

e-group		*a*-group	
(1) (2) (3) (4)	[+ sonorant]	(1) (2) (3)	[+ sonorant] [+ consonantal]
(5)	[— sonorant]	(4) (5)	[+ consonantal]

At this point there is no need to specify in the *e*-group the difference in root segments between series 1, 2, 3 (double) and 4, 5 (single). The only meaningful classification here is clearly based on the nature of the segment immediately following the alternation pattern. This again shows patterning differences between the *e*- and the *a*-group. If, at this stage, there were cases like **sne*U- (Go. *sniwan, snau, snewum, sniwans* and cf. also OE *snēowan*, ON *snūa*), it seems likely that they were handled not in series 5 but in series 1 of the *e*-group; otherwise the system would show a totally unnecessary complication.

The root segments pose some reconstruction problems. For example, one may wonder whether or not glides are found as second root segments in the *a*-group; cf. Go. *bliggwan*, OHG *bliuwan* in the *e*-group. In tables 3a and 3b there is no mention of glides in such a position.

The structures found e.g. in **þreskân-* (OHG *dreskan*) and **brekân-* (Go. *brikan*) require a special treatment. They have been extensively

discussed, also in a diachronic perspective, by van Coetsem 1963:272ff. ([2]1970:398ff.).

(3) Since the pres. vs. the pret. may be considered an opposition unmarked vs. marked, the pres. root contains the base alternant. The rule formulation for the *e*-group, based on the tables 2a and 2b, 3a and 3b, is then as follows:

$$(10)\quad \begin{bmatrix} +\text{ syllabic} \\ -\text{ high} \\ -\text{ back} \\ -\text{ long} \end{bmatrix} \rightarrow \left\{ \begin{array}{ll} [+\text{ back}] & / [\overline{\text{pret. sg. ind.}}] \\ \text{Ø} & / \left[\begin{Bmatrix} \overline{\text{pret. pl. ind.}} \\ \text{pret. opt.} \\ \text{past part.} \end{Bmatrix} \right] [+\text{ sonorant}] \\ [+\text{ long}] & / \left[\begin{Bmatrix} \overline{\text{pret. pl. ind.}} \\ \text{pret. opt.} \end{Bmatrix} \right] \end{array} \right\}$$

The rule states that *e* is represented as *å* in the pret. sg. ind., as Ø in the pret. pl. ind., pret. opt. and past part. of series 1, 2, 3, 4, as *ē* in the pret. pl. and pret. opt. of series 5.

For the *a*-group, series 4, 5 (for series 1, 2, 3 see 3.9.5,2) the rule may be formulated as follows:

$$(11)\quad \begin{bmatrix} +\text{ syllabic} \\ +\text{ back} \\ -\text{ long} \end{bmatrix} \rightarrow [+\text{ long}] / [\overline{\text{pret.}}]$$

The rule states that *å* is represented as *ā̊* in the pret. of series 4, 5 of the *a*-group. It is assumed that the rule which gives the correct form to series 1, 2, 3 of the *a*-group precedes this one.

3.9.4 Late stage

(1) Of the already mentioned developments subsequent to the *ă̊-ŏ̊*-merger, the *ē*-extension in the *e*-group clearly contributed to a stronger uniformity in the basic patterning of the two groups by opposing series 4, 5 to 1, 2, 3. In the *e*-group, series 1, 2 presenting only one alternation pattern, there were now four alternation patterns, 1, 2 vs. 3 vs. 4 vs. 5. The *a*–group exhibited the same alternation patterning as in the early stage. The changes in the *e*-group are presented in the following table:

Table 4a

(1) } (2) }	e ~ å ~ Ø, Ø
(3)	e ~ å ~ u, u
(4)	e ~ å ~ ē ~ u
(5)	e ~ å ~ ē ~ e

Using the features distinguishing the ablaut alternants, this may be represented as follows:

Table 4b

(1) (2)	[— back] ~ [+ back] ~	Ø , Ø
(3)	[— back] ~ [+ back] ~	[+ high, + back] , [+ high, + back]
(4)	[— back] ~ [+ back] ~	[— back, + long] ~ [+ high, + back]
(5)	[— back] ~ [+ back] ~	[— back, + long] ~ [— back]

(2) The relevant distribution of the root segments in the *e*-group corresponding to tables 4a and 4b is as follows:

Table 5

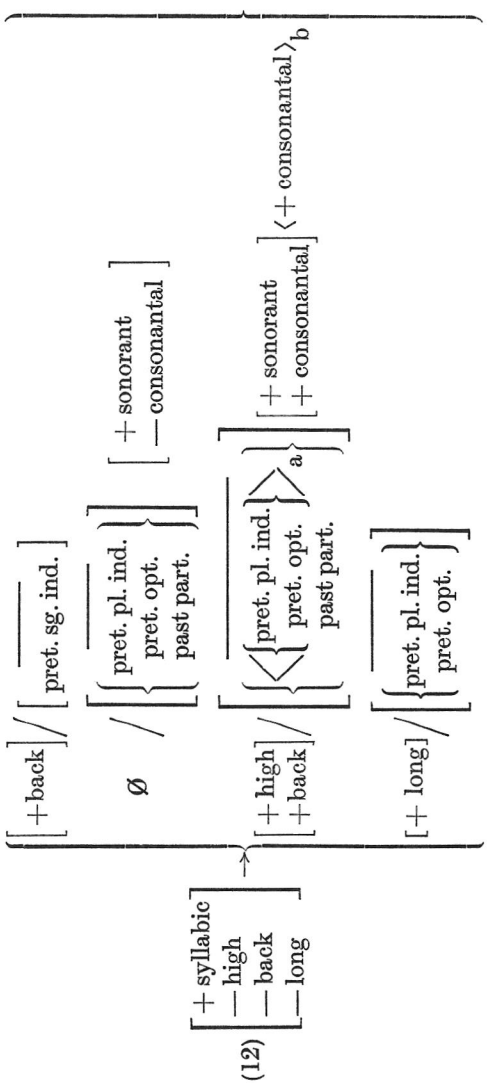
e-group				*e*-group		
(1) (2)	[I] [U]			(1) (2)	[+ sonorant, — consonantal]	
(3)	{Nas. Liq.}	{Nas. Liq. Ob.}	or:	(3)	[+ sonorant, + consonantal]	[+ consonantal]
(4)	{Nas. Liq.}			(4)	[+ sonorant, + consonantal]	
(5)	Ob.			(5)	[— sonorant]	

(3) The rule formulation for the *e*-group, based on tables 4a, 4b and 5, is mentioned on the next page.

The rule states that *e* is represented as *å* in the pret. sg. ind., as Ø in the pret. pl. ind., pret. opt. and past part. of series 1, 2, as *u* in the pret. pl. ind., pret. opt. and past part. of series 3 and the past part. of series 4, as *ē* in the pret. pl. ind. and pret. opt. of series 4, 5.

The growing complexity from rule 10 to rule 12 (also shown in the tables), demonstrating an increase in the number of ablaut alternation patterns, reflects the start of an important trend, which went on also after the *e*-*a*-period, namely after the correlation breakdown between *e* and *ē*, *å* and *ā* and the PGmc. umlaut that occasioned the split between series 1 and 2. This trend continued in the time of the separate Gmc. languages and contributed to the gradual desintegration of the ablaut system.

3.9.5 As is well known, both the qualitative and the quantitative ablauts are of IE origin. In a general way, the *e*-group of the Gmc. strong verbs goes back to an IE alternation *e* ~ *o* ~ Ø, the nature and the number of segments following the alternants being thus irrelevant.


(12)
[+ syllabic
— high
— back
— long]
→
[+back] / [pret. sg. ind.]
Ø / [pret. pl. ind. / pret. opt. / past part.] [+ sonorant / — consonantal]
[+ high / +back] / [pret. pl. ind. / pret. opt. / past part.]a [+ sonorant / + consonantal] ⟨+ consonantal⟩b
[+ long] / [pret. pl. ind. / pret. opt.]
Condition: if a, then b

However, some complications obviously arose in the structure reflected by series 5. The *ē* which that series has in the pret. pl., a category which elsewhere shows the reduced grade, is an irregularity that may be due to distributional difficulties, e.g. the impossibility of a syllabic *ƀ*, *ƀh* in the verb PGmc. **geƀan-*, IE **ghebh-*. It is also possible that in this category of series 5 there was an *e* before *ē* was introduced (Meid 1971:

50–1). It seems in any case very likely that even before the *ă-ŏ*-merger there were in the *e*-group two ablaut alternation patterns opposing series 5 to series 1, 2, 3, 4 (cf. also Hinderling 1967:19). For the origin and systematization of that *ē* see van Coetsem 1963:279ff. (²1970: 407ff.), with bibliography (especially Kuryłowicz, Fourquet and Polomé), and now Meid 1971:50ff. In the past part. an originally reduced (nonstressed) *e* has possibly been reinstated in its full (stressed) value.

As has been stated above, the *ă-ŏ*-merger occasioned the integration of the *e*- and *a*-groups in one single system. The *a*-group is as a group clearly of younger origin, although different IE factors helped to determine its structure. This explains both its lack of a unified model (series 1,2,3 vs. 4,5) and patterning differences between the *e*- and the *a*-group (series 4, 5 of the *e*-group with two alternation patterns corresponding to one single alternation pattern in the *a*-group).

3.9.6 (1) A classification based on the *e*- and *a*-groups with the properties described above accounts for facts which otherwise would be difficult to explain. For example: (1) the extension of *ē* from the pret. pl. ind. and pret. opt. of series 5 to the same categories of series 4 (Go. *gebum, nemum*, the latter as compared to the form *skulum* of the preterit-presents), which obviously follows the patterning of the corresponding series in the *a*-group; (2) the sporadic occurrence of a so-called reduced grade in the pret. pl. indicative of the *a*-group, e.g. ON *hlupum;* such a case came into existence in conformity with the ablaut alternation pattern of the corresponding series of the *e*-group (pret. sg. ~ pret. pl., Go. *bauþ* ~ *budum*), but remained sporadic because it violated the internal patterning of the *a*-group (ON *hljōp, hljōpom* and cf. Go. *aiauk, aiaukum*); (3) considering the relevant distinction in the *a*-group between the maximal morpheme length (xxx/x̄x) of the pres. root in series 1, 2, 3 and a nonmaximal morpheme length (xx) of the pres. root in series 4, 5 (3.1.1), it is quite understandable that with the development of a new pret. in the so-called reduplicating class in NWGmc., minority cases (e.g. **l(ǣt)-*) were treated like verbs in the *a*-group which correspond to them in morpheme length and phonetic structure (e.g. **x(åit)-*); cf. OHG *lāzan* ~ *liaz* and *heizan* ~ *hiaz*. For an extensive treatment of these different points see van Coetsem 1956 and later publications mentioned in 3.9.1.

(2) There is a fourth phenomenon which seems to be best considered within the framework of the integrated *e*- and *a*-groups; it concerns the just mentioned development of a new ablaut alternation for indicating the pret. in the so-called reduplicating class in NWGmc. (OHG *heizan* ~ *hiaz* vs. Go. *haitan, haihait*). Different explanations have been proposed (for details see van Coetsem 1956:47ff.; 1970:89–91). The contraction

theory (in several variants) tries to keep the NWGmc. and Go. pret. forms together, and considers the 'new' ablaut alternant (e.g. in OHG *hiaz*) the result of contraction of the reduplicated form *(*xexåit-)*. As a general explanation this theory is unconvincing, also in the infixation variant of Bech 1969. Another theory traces the difference in question back to different IE ablaut alternants; however, there is no evidence at all for such an assumption. A third theory regards the new ablaut alternation in the *a*-group as the inversion or mirror image of the corresponding series of the *e*-group: *e* ~ *å* / *å* ~ *e*. This explanation, which has been called 'inverted analogy,' is by far the simplest. Objections which have been raised to it concern chronological questions (Meid 1971: 96–7) and most importantly the lack of parallels to such an inverted analogy *as a diachronic principle* (Bech 1969: 50). Such an inverted analogy should now, however, be reconsidered in the larger perspective of polarity inversion, which only happens in very specific environments. In PGmc., reduplication was clearly the original principle for indicating the pret. in series 1, 2, 3 of the *a*-group. The constant element in the reduplication was the vowel *e*. It appears, then, that there was already in the *e-a*-period a sort of inversion *å* ~ *e* in the reduplicating class (in comparison with *e* ~ *å* of the *e*-group) as the result of simple application of the reduplicating principle. This inversion could have been easily recognizable in some roots with vowels as initial segments (Go. *aikan, aukan*), *e*-group = *e(i)* ~ *å(i)* vs. *a*-group = *å(i)* ~ *e((a)i)* in **åik-* (Go. *aikan*) **eåik-* (Go. *aiaik*). This can be schematized in the following diagram:

	Present	~	Preterit
	↓		↓
e-group =	*e*(i)	~	*å*(i)
a-group =	*å*(i)	~	*e*((å)i)
(series 1, 2, 3)			

This situation may have operated as a trigger to the application of polarity inversion, which as a general phenomenon can be formulated in the simple rule: [α feature] → [— α feature] (Chomsky–Halle 1968: 355–6 and see Kiparsky 1965: 2–38). This constitutes a tremendously simplifying generalization. In the *e-a*-period reduplication and polarity inversion were, then, concurring principles. The fact that NWGmc. ultimately chose the 'new' ablaut and Go. continued the reduplication has been brought in connection with the operation of Verner's law and nicely explained by Bech 1969: 4ff.

4. Rule ordering and rule formulation

As the whole exposition has clearly demonstrated, there is a close relationship and interaction between so-called 'morphophonemic' rules and other rules in the language, so that rule ordering in a separate morphophonemic section is next to impossible; occasionally certain references to rule ordering have been made (cf. 2.2). Also, in a complete grammar of the language, some of the above rule formulations may have to be adapted or even reformulated.

5. The matrix

The fully specified phonetic matrix used here is based on Chomsky–Halle 1968:176–7, 298ff. and refers to PGmc. after the umlaut operation. For the vowel and consonant systems see Antonsen 1972, Moulton 1972 and van Coetsem 1970:5, 39ff.; the late PGmc. vowel system as described by Antonsen 1972: § 5, namely

i	*u*	*ī*	*ū*
e		*ē*	
a		*ǣ*	*ɔ̄*

is used for the description in the matrix. *ƀ*, *f*, being considered bilabial, are specified as [— strident] (see however van Coetsem 1970:64; Moulton 1972: § 1.1). *r* is undoubtedly [+ anterior]. It is possible that the feature distinguishing between *l* and *r* is [lateral]. However, it seems that there is also a distinction with respect to the feature [continuant], which is also used elsewhere in the language; the latter alternative is chosen here (cf. Chomsky–Halle 1968:318).

The allophones incorporated in the matrix are those for which there is clear evidence. The underlying segments, with listing of the allophones between square brackets, are: *i* [y], *e*, *a*, *u* [o] [w], *ī*, *ē*, *ǣ*, *ɔ̄*, *ū*, *m*, *n* [ŋ], *l*, *r*, *p*, *t*, *k*, *ƀ* [b], *đ* [d], *g* [g], *f*, *þ*, *x*, *s*, *z*; [ã], [ĩ], [ũ] are phonetic realizations of underlying *a* + *n*, *i* + *n*, *u* + *n* respectively.

A distinctive feature matrix for the underlying segments might not include all of the features handled in the phonetic matrix. This question will not be treated here.

	i	e	a	o	u	ī	ã	ũ	ĩ	ē	ǣ	ō	ū	y	w	m	n	ŋ	l	r	p	t	k	þ	đ	g	b	d	g	f	þ	x	s	z
syllabic	+	+	+	+	+	+	+	+	+	+	+	+	+	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−
sonorant	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−
consonantal	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
coronal	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	+	−	+	+	−	+	−	−	+	−	−	+	−	−	+	−	+	−	+
anterior	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	+	+	−	+	+	+	+	−	+	+	−	+	+	−	+	+	−	+	+	+
high	+	−	−	−	+	+	−	+	+	−	−	−	+	+	+	−	−	+	−	−	−	−	+	−	−	+	−	−	+	−	−	+	−	−	−
low	−	−	+	−	−	−	+	−	−	−	+	+	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−
back	−	−	+	+	+	−	+	+	−	−	−	+	+	−	+	−	−	+	−	−	−	−	+	−	−	+	−	−	+	−	−	+	−	−	−
nasal	−	−	−	−	−	−	+	+	+	−	−	−	−	−	−	+	+	+	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−
continuant	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	−	−	−	−	+	+	+	−	−	−	+	+	+	+	+	+
voiced	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	−	−	−	+	+	+	+	+	+	−	−	−	−	−	+	
strident	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	+	+	
long	−	−	−	−	−	+	+	+	+	+	+	+	+	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−

Germanic Word Formation*

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Outline

1. Introduction 212
2. Historical-Philological Approach 213
3–6. Sketch of Germanic Word Formation 216
3. Compounds 216
4. Derivation 221
5. Affixation 223
6. Ablaut 225
7. Taxonomic Approach 226
8. Generative-Transformational Approach 231
9. Conclusion 236

* For technical reasons many of the abbreviations and capitalizations in this essay are not in accordance with those of the other essays. (Eds.)

1. Introduction[1]

Studies in Gmc. Word Formation (Gmc. WF) have been hampered by an abundance of forms, an inconsistent and often confusing terminology and a dearth of methodological approaches. Unlike studies in PGmc. Phonology, WF studies have relied less on reconstruction and more on actual examples. With the exception of Carr (1939), few investigators have attempted to draw rigid lines between the proto-language and the dialects (dials.). Rather than a description of Gmc. WF per se, a general picture of the development of a given type of Word Formation Pattern in the dials. has emerged.[2] (WFP is a cover term for either Compounding or Derivation.) The present study outlines the nature of Gmc. WF and discusses three possible approaches to it: the Historical-Philological Approach (HPA), the Taxonomic Approach (TA), and the Generative-Transformational Approach (GTA).

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[1] To the other contributors who commented on an earlier version, W. H. Bennett, W. P. Lehmann, Herbert Penzl, and Frans van Coetsem, especial thanks.

[2] A number of treatments are available: (A) BIBLIOGRAPHY: Seymour 1968 with 2000 annotated titles and useful Indices to Words, Phrases, & Etymologies; to Grammatical Categories; and to Specific Prefixes, Suffixes, etc.; also the bibliographies in Carr 1939 and Meid 1967; (B) THEORY OF WF: Paul 1960; Lees 1960; Motsch 1967; Chomsky 1970; Wunderlich 1971; (C)GENERAL TREATMENTS: Grimm 1878–98; Hirt 1932; Kubrjakova 1963; and with major emphasis on IE origins Meid 1967; (D) SPECIALIZED FORMATIONS IN GMC.: von Bahder 1880 and Hinderling 1967 on Verbal Abstracts; Kluge 1926 on Nominal Stem-Formation; Carr 1939 for the most extensive treatment of Nominal Compounds, Intensifiers and Composition Suffixes; (E) WF IN THE DIALECTS: Go.: von der Gabelentz–Löbe 1846; Wright 1966; Mossé 1956; J. W. Marchand (mimeo) n. d.; and Johansson 1904 for Nominal Comps.; Buckalew 1964 for a Transformational Approach; OE: Wright 1934; Storch 1886; MnE: Koziol 1937; and H. Marchand 1960 with a Synchronic-Diachronic Approach; Lees 1960 with a Transformational Approach; OS: Hucko 1904 on OS Nominal Compounds and Derivations; Ilkow 1968 on Nominal Compounds in OS Biblical Verse Epics; and Roedder 1901 on Compound Adjs; OHG–MnGER: From an historical perspective: Wilmanns 1899; Paul 1959; Paul–Stolte 1951; Henzen 1965; OHG: From a synchronic view point: Morciniec 1959 on Compounds in Notker; MnGER: From a Synchronic Point of View: Curme 1952; Motsch 1967; and Fleischer 1969; SCAND: For OI, Cleasby–Vigfusson 1957; On OI Derivation, Torp 1909; Jóhannesson for OI and MnI Compounds 1929 and Suffixes 1927; and for Swed. from an historical point of view: Hellquist 1922, Wessén 1965, and Söderbergh 1967.

1.1 Definition

WF (Wortbildung)[3] treats the formation of new words either by juxtaposing Roots to form Compounds (3) or by attaching an Affix to a Root: Derivation (4). Since WF excludes Inflectional Endings, WF differs from Stem Formation (Stammbildung). Stems are more properly treated in the Morphology and occur in WF only in Compounding where the concept Composition Vowel is more useful (3.2.1). A WFP may have a Functional Meaning, e.g. a Suffix which shifts a Noun to an Adj. like Go. *grēd-ags* 'hungry' from Go. *grēdus* 'hunger', and/or a Semantic Content, e.g. the Go. Agent Suffix *-ja-* in *fiskja* 'fisherman'. (On the nature and origin of WF, Paul 1960:325ff.).

2. The Historical-Philological Approach (HPA)

This approach has dominated Gmc. WF studies since Grimm (1878–98). Its main emphasis lies in describing the development and history of a WFP from the time it appears in the language until it ceases to be productive. In Gmc. WF, the earliest language cited is often IE if the WFP occurred there and many times the last language cited is a modern reflex of Gmc. Thus, most studies have been characterized by bidirectionality, describing (1) patterns inherited from IE into Gmc. and (2) patterns in the various dials. which may be ascribed to the proto-language. Other aspects are a relative chronology, the type of Roots entering a WFP, and the morphology of both the Roots and the resultant WFPs.

2.1 Assignment to the Proto-Language

Assuming there has been no borrowing between the dials., where a pattern is present in all dials., where it has a clear semantic or grammatical meaning and is directly relatable to a word or words in Gmc., the WFP probably existed in PGmc. A commonly cited example is the Adj. formant **-līka-* 'having the body of' and later coming to mean 'having the quality of', e.g. Go. *waíraleiks** 'männlich, eigl. einen männlichen Körper habend' (Kluge 1926) in the Adv. *waíraleikō*. The formant is clearly cognate with Gmc. **līka-* 'body, shape', e.g. Go. *leik*, ON *lík*, OE *līc*, OFri. OS *līk*, OHG *līh*. As with the basic Noun, Adjs. of this type appear in all Gmc. dials., e.g. OE *frēondlīc*, OFri. *frīondlīk*, OS *friundlīk* 'friendly'; OHG *fīentlīh* 'inimical'; OI *kvennligr* 'womanly' (on *-ligr*'s shape, 4.1).

The combination of these factors yields a continuum–ranging from

[3] Where suitable, selected alternate terms are given in brackets.

presence in all Gmc. dials. and high frequency in each to presence in only one dial. and low productivity there. At the opposite end of the continuum are formations which are extremely infrequent in Gmc., but which existed in IE and so must be ascribed to PGmc. The Noun formant **-ma-/-man-* was already dying out in Gmc., but represented the common IE formant **-mo-/-men-*, e.g. MnGer. *Saum* and MnE *seam*, cf. Go. *siujan*, MHG *siuwen*, MnE *sew*. Some scholars have focused on the IE Determinatives (Erweiterungen) whose function in Gmc. can barely be discerned and whose meaning is even more elusive (Hirt 1932:6ff.).

2.2 Chronology

The lack of texts contemporary to PGmc. times precludes an absolute chronology. But where a WFP occurs in all the dials. and with high frequency in each, it is possible to set up a Relative Chronology. The Agent Markers for Nouns *-ja-*, *-jan-*, and *-ărja-* occur in the various dials. with differing levels of productivity and distribution. *-ja-* occurred commonly only in NGmc., forming Agents from Nouns; Go. *haírdeis* 'shepherd'; OI *hirðir;* OE *hierde;* OS *hirdi;* OHG *hirti* cf. Go. *haírda* 'herd'. *-jan-* was also used to form Agents from Nouns and some Vbs. and was more common than *-ja-*, Go. having the greatest number of such formations: Go. *fiskja* 'fisherman', cf. Go. *fisks* 'fish'. In the other dials., the Suffix was little used, often causing Umlaut when it did occur: OI *arfnyti* 'heir'; OE *dēma* 'judge'; OS *gibenkeo* 'bench-mate'; OHG *gravio* 'Graf'. The third Suffix *-ărja-* borrowed from Lat. *-ārius* appears to have been adopted by Go. and OHG first since they were the dials. closest to the Roman Empire and then to have spread North. The following facts demonstrate its relative newness to Gmc.: it only occurred in learned formations in Go., e.g. *bōkareis* 'scribe'; there are merely five examples in the Heliand; in Beowulf there is only *scēawere* 'spy'; and in the Edda only *tjúgari* 'robber'. The form also differed between the dials., OS *-eri*, OE *-ere* pointing to a short vowel, while the other dials. showed a long vowel. Originally borrowed in Lat. words like *molīnārius* 'miller' cf. *molīna* 'mill', *-ărja-* was first attached to Nouns in Gmc. showing the 'area of activity' a person was involved in. Later, the Suffix was used to form Agent Nouns from Vbs.: Go. *sōkareis* 'seeker', OHG *suochāri* cf. Go. *sōkjan*, OHG *suochen* 'to seek'. This third Suffix became exceptionally productive in the individual NGmc. and WGmc. dials. From this evidence we can conclude that (1) *-ja-* was the oldest and dying out; (2) *-jan-* more frequent and probably the general Agent marker in Gmc.; (3) *-ărja-* clearly borrowed from Lat. in two different forms: one with a long and one with a short vowel. One might even go so far as to assign the first two markers to

PGmc., and the third to the predialect stage. Kluge (1926) was particularly concerned with the interrelationships of various WFPs. In the future, a relative chronology for all Gmc. WFPs. should be proposed. That this will be difficult is evident from Hinderling's (1967) work on the Gmc. patterns: **skuti-* m. and **gaskota-* n. 'shot'.

2.3 Types of Roots

This history of the Agent Suffix demonstrates the HPA's concern with the types of Roots in a WFP. The earliest Suffix *-ja-* occurred with Nouns; the next Suffix *-jan-* was attached to Nouns and some Vbs.: the borrowed Suffix *-ărja-* parallels its use in Lat., being attached at first to Nouns, but later commonly used with Vbs. also. A shift in the type of Root in a WFP can help to determine the relative chronology since one type of Root is more common at a given time than another. This may lead to the conclusion that one type of construction is dying out, the other becoming more frequent. Finally, the type of Root can have a bearing on the semantics of a WFP. Thus, we see the Agent Marker *-ărja-* shifting from the semantic area with Nominal Roots 'being involved in X' to a true Agent meaning with Vb. Roots 'doing the action' indicated by the Vb.

2.4 Morphology

The morphology of both Roots and the resultant WFPs. is important in treating the historical development of a Suffix. For example, the original short form of the Adj. formant **-ha-/-ga-* appears in OHG *eina-g* 'any, only, sole', but soon came through False Segmentation (falsche Ablösung) from *a*-stems to be **-aga-*. Since the *u*-stems went over to the *a*-stems in WGmc. and Go., **-aga-* appeared with *u*-stems as well: Go. *grēdags*, OHG *grātag* 'hungry' cf. Go. *grēdus* 'hunger'. Similarly, **-uga-* was derived from *u*-stems: Go. *handugs* 'clever, skilful'; cf. Go. *handus;* OI *gráđugr* 'hungry' cf. OI *gráđr*, Go. *grēdus* 'hunger'. In NGmc., *-ugr* started to spread at the expense of the other variants, particularly **-iga-* which was similarly derived from *i*-stems: Go. *mahteigs*, OE *mihtig*, OS *mahtig*, OHG *mahtīg* 'mighty' cf. Go. *mahts* 'might'. Since, according to an archaic WFP, *a*-stems could substitute an *i*-stem in the pattern, **-iga-* occurred with *a*-stems as well: OS *mōdig* 'excited'; OHG *muotig*. (Further details in Meid 1967:192ff.).

3–6. Sketch of Germanic Word Formation (WF)[4]

The following presents the HPA's general results in WF, first for Compounding and then for Derivation. The major emphasis is on those WFPs. ascribable to the proto-language.

3. Compounds

3.1 Properties of Compounds

A Comp. consists of one Root plus another where the second normally furnishes the Inflectional Class (For exceptions 3.2, 3.3.3). In the main, Early Gmc. was richest in Comp. Nouns and Adjs. Such forms as Go. *af* could precede both Nouns and Vbs. Bennett (1972: § 1.9) has drawn the important distinction between Prefixed Nouns and Vbs. with Proclitics. That view is maintained in the following. Vbs. did not occur with Nominal First Members, that being a development in the dials. Most of the discussion below is devoted to Comp. Nouns and Adjs. (On various definitions of Comps., Salus 1965:39ff.; also 60 where he suggests that Pollak's 1912 schema for Comps. is the most adequate on a descriptive (TA) basis.)

3.1.1 Length of Comps.

Early Comps. consisted of two Members: e.g. Go. *figgra-gulþ* 'finger-ring', three Member Comps. such as OS *aðalordfrumo* 'the noble creator', being a later development. (On tripartite Comps. Carr 1939:197ff.)

3.1.2 Age of Comps.

Carr (1939:XXIXff.) attempted to state precisely the reasons according to which Comps. may not be considered original. While he correctly stressed that such tests for age may not apply equally in all cases (some counter-examples may be cited), they are given below: (1) if Comps. (such as those referring to Christianity or stone-building) exceed the cultural level of the Gmc. peoples before they dispersed, they are most likely independent formations or borrowings; (2) if Comps. contain loanwords borrowed independently into each dial., the Comps. are recent; (3) if Comps. have a similar form but a different meaning they are not original formations unless one meaning is derivable from another; (4) if a parallel

[4] For the most part, the SKETCH is based on Carr 1939, Kluge 1926, and Meid 1967. Further examples and documentation may be found in those handbooks.

formation occurs in two or more dials., but the same idea is expressed differently in another the parallel is probably fortuitous; (5) if the Comp. coalesced in each dial. from a syntactic phrase, it is obviously not an original formation; and (6) if the parallels in each dial. are recorded at a comparatively late date, they are probably not original formations– although this is an uncertain test due to the nature of Early Gmc. records, since many popular words inherited from PGmc. do not appear in early texts.

Carr then proposed criteria for ascribing a WFP to the proto-language by pointing out that Comps. could show the effects of certain phonetic changes such as Verner's Law and WGmc. Consonant Doubling, that they could preserve older stem formations no longer present in the Simplex and finally that examples of similar formations existing in other languages than Gmc. and inherited from pre-Gmc. times were very rare, and hence that the ascription of a WFP to the proto-language on the last basis is uncertain at best.

3.1.3 Primary Comps. (PCs.: Grimm's eigentliche Komposita)

The basic patterns were inherited from IE and characterized by the presence of a Composition Vowel (CompV), e.g. Go. *mat-i-balgs* 'meat-bag, wallet, scrip'. The process for creating PCs. is called *Zusammensetzung*, and the characteristic result an independent unit, e.g. Go. *lukarn-a-staþa* 'candle-stick'.

3.1.4 Secondary Comps. (SCs.: Grimm's uneigentliche Komposita)

In contrast to the CompV of the PCs., SCs. show a Case Ending in the bridge of the Comp., e.g. Go. *baúrg-s-waddjus* 'town-wall'. This example is the earliest for Gmc. and at the same time the only one in Go. The earliest Ru. example is *weḷAdud* 'he who suffers a deceitful death' (Stentoften, Krause 1966: no. 96).

3.1.5 Origin of SCs.

SCs. are thought to have arisen through the *Zusammenrückung* (a kind of Zusammensetzung) of the parts of a long syntactic unit, the result being a looser unit than in Zusammensetzung. Often, an SC can be dissolved into its separate parts. While PCs. represent an older, IE formation at a time when stems were juxtaposed in undeclined form (Hirt's Kasus indefinitus 1932:118, but see Hermann 1948:37ff.), i.e. without regard for the case relationships involved, SCs. arose within the separate IE

dials. Zusammenrückung, of course, could occur at any time, so that it is not always possible to tell when one is dealing with an IE formation. Carr, however, showed that there were no parallels between the Gmc. languages which revealed the presence of any SCs. in PGmc. But there is no doubt that they already existed in WGmc. and in Proto-Scand. Interestingly, the oldest parallels among SCs. in WGmc. are the names for the Days of the Week formed in the Lower Rhine area. But Carr (1939:312) believes that these must have been made on the pattern of already existing. SCs. Furthermore, SCs. were relatively rare in OE as compared with OHG or OI.

Carr maintains that SCs. with a Gen. attribute as the First Member were the starting point of this group, e.g. *baúrg-s-waddjus* 'town-wall' and that they developed through Zusammenrückung (Carr 1939:310; Paul 1960:330ff.). Since the Gen. stood before the Noun there were two words in the phrase receiving primary stress. When the second primary stress was weakened the first primary stress became the main stress for both words. If along with the stress shift, an isolation in meaning also occurred a Comp. resulted. This was sometimes indicated by writing the Members together, but medieval scribes were very inconsistent, cf. MnE *ice cream* vs. *ice-cream* (Bloomfield 1933:228).

Furthermore, SCs. were added to (1) by reinterpreting the CompV of PCs. as case endings; (2) by reinterpreting the glide vowels of a Comp. like OHG *brūtigomo* 'bridegroom', (the *i* may be regarded as the Gen. Sg. of *brūt* cf. OE *brȳd* attested as a f. *i*-stem); (3) by using other cases in the Comp.; and (4) by transforming PCs. into SCs. on the analogy of existing formations. At times, the two types stood side by side: OI *borgstaðr*, later *borgarstaðr* 'town-site'.

3.1.6 Differentiating PCs. and SCs.

In OE, OS, and OHG a precise distinction between PCs. and SCs. cannot always be drawn, as in many cases it is doubtful whether the vowel in the bridge of the Comp. represents a CompV, a Case Ending, or a glide between an awkward group of consonants.

3.2 Morphology of Comps.

Comps. often showed different morphological traits than the corresponding Simplexes. Primary Comps. had a Composition Vowel, Secondary Comps. showed Case Endings; and the resultant Primary Comp. or Secondary Comp. could belong to a different declensional class from the Last Member (For details Carr 1939:197ff.).

3.2.1 PCs.' Composition Vowel (CompV)

For many stem classes, the stem vowel served as the CompV. For example, Go. *mat-i-balgs* 'meat-bag' followed the *i*-stem *mats* 'meat, food'. However, that the CompV was not always the same as the Stem Vowel is shown by the *an*-stems, e.g. Go. *gumakunds* 'male', which had *-a-* in the bridge of Comps. from the beginning in analogy to the *a*-stems in the proto-language. Furthermore, the CompV was subject to considerable modification and even loss within the various dials. Generally, it was rather well maintained in Proper Names, in Ru. and Go., while it disappeared after a long syllable in OHG and OS, and completely in OI.

Carr found certain common developments among the dials. The CompV appears to have been dropped: (1) before *h*, e.g. Go. *freihals* 'freedom'; (2) before *w*, e.g. *Dagvaldus* (from *Dagawald-*); (3) before a Vowel, e.g. Go. *háimōþli* 'homestead, lands'; and (4) when the CompV was in a relatively unstressed syllable: Go. *anþarleikei* 'difference', but Go. *akranaláus* 'fruitless'. (For further bibliography and problems especially in OS and OHG, Carr 1939:268ff.)

3.3 Semantics of Comps.

Comps. have been divided into a number of semantic groups, often based on IE WF categories and usually referred to in the older works by Skt. terms. More recently, Carr (1939) and Meid (1967) have chosen to replace Skt. terms with (1) Copulatives (Cops.), (2) Determinatives (Dets.), and (3) Exocentrics (Exos.). The procedure below follows the general practice of giving the so-called Semantic Category and then subdividing it by Root Types, e.g. N + N. (On the relation of various classifications for Gmc. to Skt. and each other, Salus 1965:58.)

3.3.1 Copulatives (Cops.: Skt. *dvandva* 'pair')

The two Members could be joined by 'and,' signifying that neither modified the other in any way. Cops. and Dets. could contain the same Roots, but the relation of the Members to one another was different. For example, MnI *bláhvítr* may be a Cop. in some contexts, meaning 'blue and white' while OI *bláhvítr* is considered a Det.: 'bluish-white'. In older Gmc., Cops. were not common, appearing only in the Numerals from 13–19, e.g. Go. *fidwōrtaíhun*, OI *fjórtán*, OE *fēowertȳne*, OFri. *fiūwertīne*, OS *fiertein*, OHG *fiorzehan*, i.e. 4 + 10 = 14. (On other types in the dials., Carr 1939:40ff.)

3.3.2 Determinatives (Dets.: Skt. *tatpuruśa* in its widest sense)[5]

In this type Comp. one Member modified or limited the other, normally the First Member modifying the Second, as in OI *bláhvítr* 'bluish-white'. (On Final Dets., Carr 1939:XXVIII.)

Further, the Members could stand in a (1) CASE RELATIONSHIP: OI *mannfall* 'death of a man'; (2) PREPOSITIONAL RELATIONSHIP: OI *armbaugr* 'ring on one's arm'; (3) ATTRIBUTIVE RELATIONSHIP: OHG *goldfaz* 'golden vessel'; (4) APPOSITIONAL RELATIONSHIP: OHG *miltitou* 'mildew', i.e. 'dew like honey'; and (5) ADVERBIAL RELATIONSHIP to one another: OI *árvakr* 'early awake'. (Details in Carr 1939:321ff.) A common type Det. was NOUN + NOUN: Go. *áuga-daúrō* 'eyedoor, window'; OE *ēag-duru;* OHG *ouga-tora*. Often this type occurred with the First Member as the logical object of the Second Member which was formed from a Verbal Noun having an Agent Suffix: OHG *erpi-nomo*, OE *yrfe-numa* (with *-an-*), Go. *arbinumja* (with *-jan-*), all meaning 'heir'–these are Skt. *tatpuruśa's* in its narrowest sense. ADJ. + NOUN was also common to the dials., e.g. despite the varying shape of the First Member: Go. *midjun-gards*, OI *miđ-garđr*, OS *middil-garda*, Isidor *mittin-gard* 'the inhabited earth', i.e. 'the middle world'. (Details in Ilkow 1968:296ff.) Finally, there is the type NOUN + ADJ.: Go. *faíhu-gaírns*, OI *fé-gjarn*, OE *feoh-georn* 'avaricious'. The type was most common with a Verbal Adj. as the Second Member: Go. *handu-waúrhts*, OE *handworht* 'hand-made'; OHG *hand-haft* 'taken by the hand'; OI *hernuminn* 'captive'.

3.3.3 Exocentrics (Exos.)

In this WFP, the resulting Comp. has a different meaning and/or belongs to a different form class from any of its Members. Thus, semantically MnGer. *barfuss*, MnE *bare-foot* characterize someone who 'has bare feet'; and morphologically, while ending in a Noun, the resultant Comp. is an Adj. An important type of Exo. is the POSSESSIVE COMPS. (Skt. *bahuvrīhi:* lit. '(possessing) much rice'): Formally, Poss. were formed in the same way as Dets., but with a different relationship between the Members. A distinction is made between Adj. and Nominal Poss.: Adj. Poss. were the normal type in Early Gmc., but later went out of use in all but 'extended' form, while Nominal Poss. increased in frequency throughout the period. An extended Comp. of this type, i.e. one having a Suffix added to it, is OE *gold-hilt-ed* 'with a gold hilt'. With ADJS. AS FIRST MEMBERS (Adj. *bahuvrīhis*): OI *berfœttr*, OE *bærfōt*, OFri. *berfōt*,

[5] See Carr 1939:XXV who would abandon this Skt. term and *karmadhāraya* for Gmc. entirely.

MLG *barvōt*, MHG *barvuoz* 'bare-footed'. Both NUMERALS (Skt. *dvigu* 'two cows') and NON-NUMERALS occurred as First Members: Go. *fidur-dōgs*, OE *fēower-dōgor*, OHG *fior-tagig* 'lasting 4 days' and Go. *manag-falþs*, OE *manigfeald*, OHG *manag-falt;* 'manifold', but OI *marg-faldr*.

3.4 Table 1 (adapted from Carr 1939:162) shows the development of Nominal Comps. from PGmc. into WGmc. The statistics are not absolutes, but rather indicate the relative standing of one WFP to another.

Table 1

TYPE OF COMPOUND	PGmc.	WGmc.	EXAMPLES
COPULATIVES:			
(a) NUMERALS	7	7	Go. *fidwōrtaíhun* 'fourteen'
DETERMINATIVES:			
(a) NOUN + NOUN	136	417	Go. *áugadaúrō* 'window'
(b) ADJ + NOUN	10	34	Go. *midjungards* 'earth, world'
(c) NOUN + ADJ	34	68	Go. *faíhugaírns* 'avaricious'
(d) ADJ + ADJ	15	26	OI *bláhvítr* 'bluish-white'
EXOCENTRICS:			
(a) ADJ BAHUVRĪHIS:	16	44	OE *bærfōt* 'bare-footed'

3.5 Comp. Vbs.

Gmc. showed two types of Comp. Vbs.: those with Proclitics (5.1.2) and those with Nouns as First Members. The latter appear to be a relatively late, independent development in the individual dials. These arose in two ways: Go. *idweitjan* 'to reproach' from the already existing Comp. Noun *idweit* 'reproach' and the so-called *Synthet(ic)a* such as OI *hugfesta* from *festa í hug* 'to fix in one's mind'. (On the development in OScand., Åkermalm 1955).

4. Derivation (Ableitung)

This process formed words by Ablaut and/or Affixation, i.e. attaching Affixes to Roots. It differed from Compounding in that Affixes were not normally separate words and often had weakened meaning when compar-

ed to related forms not used as Affixes. Members of Comps. easily became Affixes so that in some instances no strict lines may be drawn between Compounding and Derivation. In modern spoken languages stress and intonation are aids in distinguishing Members of Comps. from a derived form.

4.1 From Compounding to Derivation

The shift from Compounding to Derivation could take place within the same WFP. Semantically, the shift could be signaled by a weakening in meaning, which was often accompanied by a weakening in the phonetic shape of the morpheme involved, e.g. OI *-ligr* and OSwed. *-liker* vs. OI *lík* 'body'; both having weakened vowels *ī* to *i* and OI with a weakened consonant *k* to *g* as well. It is often possible to find forms at various stages of transition with (1) full meaning as a separate word; (2) the original meaning still often discernible; (3) the original meaning weakened or changed enough to become a Prefix or Suffix. INTENSIFIERS: First Members of Comps. which were independent words could develop into Prefixes (Carr's Intensifying Compounds 1939:344). This happened to both Nouns and Adjs. For Nouns: OI *megin*, OE *mægen;* OS and OHG *magan* occurred in a Comp. in its full meaning in OI *meginverk*, OE *mægenweorc* 'mighty deed', but Notker *magen uuerch* 'magnificentia'. OI *megin's* drift toward Prefix status can be observed in *meginfjall* 'high mountain'. (Further examples in Carr 1939:345ff.) Similarly, two Adjs. *all* and *ein* formed such constructions in the proto-language. *all* occurred most frequently with Adj. Second Members: OI *alhvítr* 'quite white'. Similarly, *ein* was used with Adj. Second Members: OI *einharðr*, OS *ēnhard*, OHG *einharti* 'very resolute, very hostile'. (On other Adjs. as Intensifiers, Carr 1939:345ff.)

4.2 Composition Suffixes (Comp. Suffs.)

Through frequent use, the Final Member of a Comp. could be weakened to a Suffix. Though more common in the history of the individual dials., there are a few such Suffixes emerging in PGmc.: some resulted in Nouns and others in Adjs. A Comp. Suff. forming Nouns: OI *-dómr* 'judgement' was shared by both NGmc. and WGmc. A Comp. common to OI and WGmc. which may have been in the proto-language is OI *vísdómr* 'knowledge', but at the time it was formed *dómr* was probably not yet a Suffix. An early parallel is OI *sjúkdómr*, OHG *siohtuom* 'sickness'. (Further Meid 1967:218ff.; Carr 1939:357ff.) Go. did not participate in the development of such Suffixes from Nouns, although it did from some Adjs. For

forming Adjs. there were several Comp. Suffs. in various stages of development, held in common by the dials: cf. **-līka-* 'body, shape' (2.1). (On other Comp. Suffs., Carr 1939:357ff.).

5. Affixation

This process consisted of attaching Affixes: Prefixes, Infixes, and Suffixes, to Roots, often shifting the class of the resultant formation.

5.1 Prefixes (Pref.)

A Pref. was placed before a Root which could be a Noun or Adj. in Early Gmc. Attached to Vbs., what is commonly called a Pref., is really a Proclitic (Bennett 1972: § 1.9).

5.1.1 Pref. with Nouns

These Comps. resulted from the coalescence of Adv. and other undeclined particles with the Noun and formed the starting point for Vbs. with Proclitics. Thus, for most Vbs. with Proclitics there is a Pref. Noun, but not vice versa. (Other details in Bennett 1972: § 1.9.) Two Prefs. are limited to Nouns, no forms occurring as Proclitics with Vbs.: Go., OE, OFri., OS *un-;* OScand. *ó-/ú-* 'not, un-' as in Go. *unkunþs;* OI *ókuðr;* OE *uncūð;* OHG *unkund* 'unknown' (on the origin of the OScand. forms, Bennett 1972: § 1.5). The one exception OHG *gi-un-sūbren* 'to make unclean' is clearly a secondary formation from the Adj. The second Pref. is Go. *tuz-;* OI and OE *tor-;* OHG *zur-* 'bad' in Go. **tuzwērs* (in the derived Vb. *tuzwērjan* 'to doubt'), OE *tor-begīete* 'difficult to attain'; Notker *zurtriuue* 'perfidus, treulos'.

5.1.2 Pref.-Proclitics

Many words occurred both as Pref. with Nouns and as Proclitics with Vbs. By and large, they were usually Preps. or Advs. of Place. In contrast to the Comp. Vbs., Vbs. with Proclitics are an older type formation, yet not as old as Pref. Nouns. OScand. lost most of the unstressed Gmc. Pref.-Proclitics–a few remaining in Pref. Nouns or Adjs.: OI *g-* from **ga-* in *gnótt* 'abundance, plenty', *gnógr* 'enough'. (Details in Kuhn 1929 and Jónsson 1970.) The most common Pref.-Proclitic *ga-* had two meanings: (1) collectivity, togetherness and (2) perfectiveness. The dials. showed reflexes of both: 'together' in Go. *ga-qiman* 'to come together';

Go. *ga-máins*, OHG *gi-meini* 'in common' and in its perfective meaning: Go. *ga-nisan*, OE *ge-nesan*, OS OHG *gi-nesan* 'to be cured'. (On the origin of *ga-* Bennett 1972: § 1.10.1 and on other Pref.-Proclitics Meid 1967: 36ff.)

5.2 Infixes

An Infix was inserted into a Root. While common in IE, Infixes are not reconstructable from Gmc. evidence alone, except in Go. *sta-n-dan stōþ stōþum* OI Past Part. *staðinn* 'to stand' where it reflected an IE *n*-present formation.

5.3 Suffixes (Suff.)

A Suff. was placed after the Root. The majority of Suffs. were inherited from IE. Yet during the PGmc. and pre-dialect stages, a few Suffs. grew out of Second Members of Comps. or were derived by False Segmentation from Roots ending in other sounds. Suffs. could change the form class of a word, e.g. Go. *lustus* Noun 'desire, lust', but the Adj. *lustusams* 'longed for'. Suffixation was exceedingly common in Gmc. and justice can scarcely be done to it in so short a space. Suffs. could form (1) Nouns, (2) Adjs., and (3) Vbs.

5.3.1 Suffs. forming Nouns

The largest number of Suffs. formed either Nouns or Adjs. Since IE did not distinguish between the two, treatments of Gmc. WF freely mix the two types of Roots. Suffs. could form Nouns which designated Persons (Personalia), e.g. the Agent Nouns (Nomina agentis) in *-ja-*, *-jan-* and *-ărja* (see 2.2). Further, Suffs. could form designations for Concrete Objects (Konkreta): for example, **-ila-* formed both Agent Nouns and Instruments, hence, OHG *weibil* 'court usher' cf. OHG *weibōn* 'to run back and forth', but also **-ila-* for Instruments: OE *slegel*, OHG *slegil* 'mallet' cf. OHG *slahan* 'to strike'. Suffs. could also designate Abstract Concepts (Abstrakta). For example, Abstract Nouns could be formed from Vbs. and a common Suff. for that purpose was **-đi-/-þi-* (IE **-ti-*). Examples occur with great frequency in all the dials.: Go. *áihts* 'property', OE *æht*, OHG *ēht* cf. Go. *áih* 'I have, possess'. Adj. Abstracts could be formed, for example, by the Suff. **-īn-:* these indicate the trait expressed in the Adj. Root on which the Abstract is based. **-īn-* occurred in all the Gmc. dials: Go. *gōdei* 'goodness', OS *gōdi*, OFri. *gēde*, OHG *guotī* cf. Go. *gōþs* 'good'. Yet another type was the Action Nouns (Nomina ac-

tionis: see 6.1ff.). Finally, a common Suff. for forming Adjs. was **-ha-/-ga-* which formed primarily abstract exocentric Adjs. from Nouns in Gmc. (see 2.4).

5.3.2 Suffs. forming Vbs.

A few Suffs. formed Vbs., e.g. *-inōn* which arose through False Segmentation from *n*-stem Nouns such as Go. *fráuja* 'lord, master' in forming 2nd Conj. Vbs. like *fráujinōn* 'to rule'. The Suffix then became productive in its extended form *-inōn*, e.g. *skalkinōn* 'to serve' cf. *skalks* 'servant' an *a*-stem.

6. Ablaut

This inherited IE alternation of vowels in Roots is most evident in the Gmc. Strong Vb., but occurred widely in the proto-language in both Inflection and WF. Though still recognizable by the time of the dials. it had a much reduced role in the last two categories and began to be replaced by Affixation. Ablaut occurred in a number of WFPs. The following list by Ablaut Series emphasizes its extent in WF. In many cases, a Strong Vb. occurred alongside the Noun. (On Ablaut, van Coetsem 1972: § 3.9.)

C = any Consonant R = lmnryw C^{-R} = any Consonant but lmnryw.
C/R = either C or R

First Series: Gmc. *-eiC- -aiC- -iC-* occurred in OI *-bítr* 'biter' m. Agent Noun; *beita* f. 'bait'; *bit* n. 'biting' cf. OI *bíta* 'to bite'. Second Series: Gmc. *-euC- -auC- -uC-* occurred in OI *skjótr* m. 'horse'; *skaut* n. 'corner'; *skot* n. 'shot, missile' cf. OI *skjóta* 'to shoot'. Third Series: Gmc. *-eRC- -aRC- -RC-* occurred in OI *bindi* n. 'sheaf'; *band* n. 'band'; *bundin* n. = *bindi* above cf. OI *binda* 'to bind'. Fourth Series: Gmc. *-eR- -aR- -ēR- -R-* occurred in OI *-beri* m. 'carrier, bearer'; *barn* n. 'child'; *bára* f. 'wave'; *burr* m. 'son' (poet.), Go. *baúr* m. 'son' cf. OI *bera* and Go. *baíran* 'to bear'. Fifth Series: Gmc. $-eC^{-R}-$ $-aC^{-R}-$ $-\bar{e}C^{-R}-$ $-eC^{-R}-$ occurred in OI *setja* 'to set' from **satjan;* extended *e*-grade: *sát* f. 'ambush'; extended *o*-grade: *sót* n. 'soot'. Sixth Series: Gmc. *-aR/C- -ōR/C-* occurred in OI *far* n. 'ship'; *fœra* 'to bring' from **fōrjan;* extended *e*-grade: *fár* 'hostility, danger, harm'; normal *e*-grade: *fjǫrðr* m. 'fjord'.

6.1 Derivation by Zero Element

Certain Gmc. WFPs. have been described on the basis of IE Suffs. which by Late Gmc. times have coalesced with the Stem Vowel and hence are no longer recognizable as Derivational Elements. Thus in Late PGmc.,

a number of Derivational Suffs. showed a Zero Element (Bloomfield). Two groups with Zero Element may be distinguished: those with and those without a change in Root Vowel (Ablaut). The so-called Action Nouns form such a group.

6.2 Action Nouns with Ablaut (Nomina actionis)

These were formed from Vb. Roots in varying Ablaut Series by a Zero Element. OE *drunc*, OHG *trunc* 'drinking' cf. OE *drincan*, OHG *trinkan* 'to drink'; OE *brǣc* 'breaking' cf. OE *brecan* 'to break'.

6.3 Action Nouns without Ablaut

These forms show derivation by Zero Element and no Ablaut, e.g. Go. Dat. Sg. (masc. ?) *slēpa* 'sleep' cf. Go. *slēpan* 'to sleep'; Go. *grēts*, OI *grátr* 'crying' cf. Go. *grētan*, OI *gráta* 'to cry'.

6.4 Concrete Nouns

Many Action Nouns came to designate Concrete Objects, e.g. OHG *steig* 'climbing', later 'path' cf. OHG *stīgan* 'to climb'; Go. *hunþs* 'catch, booty'; cf. Go. *fra-hinþan* 'to take prisoner'. (On Verbal Abstracts, von Bahder 1880 and Hinderling 1967–the latter concentrates on the Gmc. formations **skuti* m. and **gaskota-* n. and their relative chronology.)

7. Taxonomic Approach (TA –also aptly called Structural or Descriptive)[6]

The TA grew out of work in the USA on languages whose previous history was either completely or partially unknown. For that reason, it stresses accurate, thorough, and economic description of the data. Only later did the Descriptivists turn to historical problems. But even then, the *description of each stage* was essential to any historical work. Historical linguistics, thus, became the comparison of the similarities and differences in the description of two or more stages of the same language. To a great extent this basic requirement of the TA has never been met in Gmc. WF, which adds to the difficulty of dealing with it historically. European Structuralism has always readily combined descriptive and historical

[6] There are few descriptions of Gmc WF in the TA and in all but one case for the most recent stages: Curme 1952 and Fleischer 1969 for MnGer.; and H. Marchand 1960 for MnE; for OHG, Morciniec 1959 on Compounds in Notker.

approaches. American Structuralism on the other hand, clearly represents the opposite pole from the HPA and is the basis for the Generative-Transformational Approach (Uhlenbeck 1966).

7.1 HPA and TA contrasted

The HPA might best be characterized as vertical (diachronic), tracing the historical development of a single WFP from the time it appears in the language until it dies out. The TA in its purely descriptive first phase is horizontal (synchronic), showing how a WFP fits into the whole system and how productive it is at that stage. Furthermore, the TA may be markedly unhistorical in its descriptions, deriving, for example, the French masc. Adj. *gris* [gri] 'gray' from the fem. *grise* [grīz] (Bloomfield 1933:217). In the second historical (diachronic) phase of the TA, the positions of a WFP in each stage are compared and similarities and differences in form noted. The concepts of 'system' and 'separateness of stages' have been most useful to those (particularly H. Marchand 1960) using the TA. Thus, the treatment of Ablaut here is basically taxonomic (synchronic), emphasizing the systematic nature of the alternation in Gmc. and the Gmc. derivational categories in which it occurred rather than discussing Ablaut's IE antecedents or the development of IE derivational categories into Gmc.

7.2 Segmentation

Basic to any TA treatment of WF is the Descriptivist's approach to Morphology (Bloomfield 1933:207ff.). For the TA, the smallest irreducible unit of meaning is the Morpheme. The first analytical step is to segment a word into its constituent morphemes and then WF proceeds by characterizing the Morpheme and the Constructions into which it entered. In Segmentation to arrive at Morphemes, two procedures were possible: one with little or no reference to meaning or a second which relied more heavily on meaning. In the first, it was possible to separate the First Member of the Comp. *cranberry*, because *berry* occurred in other Comps., both of whose Members had distinct meanings such as *blueberry*. With one Member segmentable, it did not matter whether the other was. *cran-* was thus a *unique constituent* (Bloomfield 1933:161). By such a procedure, the so-called IE Determinatives would be segmentable. However, some Descriptivists maintained that unless both Members had a separate meaning, a word like *cranberry* was unsegmentable, and hence an Idiom. In their view, the IE Determinatives would be unsegmentable. Segmentation proceeded by isolating the Immediate Constituents through

binary cuts, whose ordering, Bloomfield (1933:210) maintained, revealed the structure of the word, e.g. *ungentlemanly* from *un-* + *gentlemanly*, from *gentleman* + *ly*, from *gentle* + *man*.

7.3 Characterizing Constructions

Once the Morphemes have been determined, it is necessary to characterize them separately as well as the Constructions into which they enter. Thus, Go. *matibalgs* 'meat bag' could be described as follows in Table 2:

Table 2

mats	*balgs*	*matibalgs*	*Abstract Pattern*
'meat/food'	'bag'	MEAT BAG	Root + CompV + Root
Noun	Noun	furnished	*Semantic Pattern*
i-stem	i-stem	by	Member 1 modifies
masc.	masc.	*balgs*	Member 2 (the traditional
Concrete	Concrete		Determinative)

The material from the Sketch (3ff.) may be characterized as follows in Table 3:

Table 3

COMPOUNDING:		
Primary Compounds:		
Earlier Stage:	Root + CompV + Root	Go. *lukarn-a-staþa* 'candle-stick'
Later Stage:	Root + Ø + Root	Go. *freihals* 'freedom'
Secondary Compounds:	Root + Case End. + Root	Go. *baúrg-s-waddjus* 'town-wall'
Extended Compounds:	Compound + Affix	OE *gold-hilt-ed* 'with a gold hilt'
AFFIXATION:		
Prefixes:		
Earlier Stage:	Prefix + Root	Go. *ga-qiman* 'to come together'
Later Stage:[1]	Pref. . . . Pref. + Root	Go. *wiþra-ga-mōtjan* 'to go to meet'
Infixes:	Ro — [Infix] — ot	Go. *sta-n-dan* 'to stand'
Suffixes:	Root + Suffix	OHG *friunt* 'friend'
	Root + Suffix + Suff.	OHG *friuntin* 'friend (female)'
Zero Element:	Root + Ø	Go. *grēts* 'crying'
Zero Element + Ablaut:	Root + Ablaut + Ø	Go. *hunþs* 'catch, booty'

[1] At the earliest, this stage is predialectal, but might well be regarded as a development in the dials. themselves.

7.4 Substitution Test

The exchange of one morpheme for another to determine its effect on the Construction's meaning has rarely been applied in diachronic WF studies. While this procedure is more suited to a living language it might be used profitably in an older language with a large corpus such as OI. (For a MnSwed. example, Loman 1962).

7.5 Terminology

An important aspect of the TA lay in properly labeling Constructions. Terms used were tested for Definitional Adequacy, i.e. whether they adequately described or characterized the Construction. The application of such a test would undoubtedly clarify many problems in HPA terminology where there has been a shifting usage throughout the years.

7.5.1 HPA's Terminology

Not surprisingly, the development of terminology reflects the history of scholarship on WF. Attempting to group large numbers of forms together for analysis, Grimm (1870–98) used a purely descriptive terminology, e.g. *Substantiv mit Substantiv*. Then as more became known about the history of IE WF, later scholars, interested primarily in the history of various patterns began to borrow IE terms. Thus, Paul (1920) used a descriptive classification for most groupings, but historical terms now appeared in the discussions, e.g. *bahuvrīhi*. In Kluge (1926), descriptive and historical terminology were readily mixed, undoubtedly based on the principle of using the most characteristic designation without regard to origin. By Henzen's time (1965) we are facing terminological chaos. The main difficulty lies in the assumption that terminology applicable to one stage could readily be transferred to another. In particular, the terms used for various other IE languages have been applied to Gmc.: thus, Skt. *bahuvrīhi*; Lat. *nomen agentis;* beside Ger. *innere Ableitung*. Furthermore, terms refer to a wide variety of characteristics and stages of the language: Skt. *bahuvrīhi* '(possessing) much rice' is an example of the WFP it designates; innere Ableitung refers to a process for deriving Nouns; and *denominative* to the fact that the word is based on a Noun, saying nothing about the class of the resultant form: *collective*, however, refers to the resultant semantic content.

Such mixture of terms often led to confusion and even misconceptions, since by giving a pattern the same designation as in IE, they could obscure important differences or changes between IE and Gmc. or Gmc.

and the dials. Thus, **-līka-* forms have been referred to as bahuvrīhi Comps., which is certainly correct for the oldest layer of these words. But by a later stage, many words formed by **-līka-* lost that particular property with the result that **-līka-* was used not as a Member of a Comp., but rather as a derivational suffix (Carr's Compositional Suff.).

7.5.2 TA's Terminology

In contrast, the TA insists not only on designations which are appropriate for each stage of the language, but also on a certain uniformity. For example, if a designation in a set is based on the structure of a given WFP, then all designations referring to that type of WFP have to reflect structure too. A truly characteristic and uniform terminology was an important part of the TA, and should be borne in mind in all future WF treatments.

7.6 TA's Advantages

The discussion above makes clear the TA's strengths: (1) primacy of synchronic data; (2) a WFP's place in the system; (3) emphasis on form and structure; (4) separateness of historical stages; and (5) clarity of presentation–all important correctives (as H. Marchand's [1960] treatment of MnE WF so admirably demonstrates) to the often random collection of historical facts and forms in the HPA.

7.7 TA's Disadvantages

It should be remembered that the TA was never really designed to deal with historical change. For example, in a strict TA historical data from an earlier stage would not be repeated at a later stage where this information was needed. A second drawback is its nearly total exclusion of meaning (Bloomfield 1933). These disadvantages are great enough that a number of linguists have sought approaches to language analysis which combine both the structural and the semantic. There are at least three recent theories applied to Gmc. WF: Stratificational Grammar (Theory: Lamb 1966; WF: Lowe 1965); Dependenzgrammatik (Theory: Heringer 1970a, 1970b; WF: von Polenz 1968) and Generative-Transformational Grammar (Theory: Chomsky 1957; 1965; historical applications: King 1969; WF: Lees 1960; Buckalew 1964; Motsch 1967a; Gleitman 1970). Although there are only a few WF studies according to each of these theories and each provides new insights, the Generative-Transformational Approach is singled out for discussion below.

8. Generative-Transformational Approach (GTA)

Because Phonology, Morphology, Syntax, and Semantics all play a part in WF, WF has been exceptionally difficult to describe. Even WF's position within the grammar itself has been disputed. When Grimm (1878–98) first treated Gmc. WF a controversy immediately arose as to is proper place: Grimm felt that WF was more dependent on Morphology than Syntax whereas Paul (1920:3f.) felt it to be more dependent on Syntax. Since the turn of the century this controversy has been dormant, but was revived by the Transformationalists (Lees 1960; Motsch 1967a) who maintain that each WFP derives from a deep structure sentence, and hence that Paul was right. The GTA maintains that the Sentence is basic to any description and hence Morphology plays a subordinate role, usually not even being referred to explicitly. The ultimate test of the adequacy of the GTA is to actually generate sentences and compounds. Thus, the phrase structure rules and transformations arrange and rearrange Roots and Endings (either Inflectional or Derivational) to form full sentences or to abbreviate underlying structures to form WFPs such as Comps. or Affixed forms on the surface. (On differences in approach to Affixed forms Chomsky 1970; Wunderlich 1971).

8.1 Semantic Interpretation

In the GTA, a single surface structure, e.g. N + N may be derived from several deep structure sources. For the GTA, the semantic interpretation is given in the form of a phrase or sentence. The need for such analysis is shown by a word like 'case-board' which uttered out of context has numerous possible interpretations: 'a board out of a (wooden) case'; 'a board for holding cases'; 'a board on which notices about cases are posted', or 'a board made by Case (rather than Smith)'. Such completely ambiguous WFPs may be less rare than we think, because at any given time a form is uttered or written, the user may have one semantic interpretation for it and the hearer another. In any case, the GTA view that Comps. may derive from structures identical or nearly identical to those which also underlie sentences or phrases is a useful hypothesis allowing the linguist to point out possible sources of ambiguity. (On problems in paraphrasing Comps., Gleitman 1970).

One may question the strict GTA's position that every WFP must be referred to a deep structure source for interpretation. While a useful analytical procedure, it overlooks the possibility that a WFP may be based purely on surface structure. Witness Naming Behavior where when walking down a hall one could make up names for various boards: a

floor-board (board in a floor), a *wood-board* (board made of wood), a *Case-board* (board made by Case). The underlying structures are so clearly different that a strict Generativist would over-analyze at this point, and miss the obvious similarity in the surface structure: N + N. This example raises the further question of how 'meaning-preserving' transformations are. Critics of Lees 1960 were quick to point out how much of his underlying sentences appears to be neutralized when the final WFPs are generated, i.e. there is very often more than one deep structure source for a given surface structure pattern. While Lees (1960) and more recently Gleitman (1970) suggest that stress helps to preserve some distinctions in MnE Comps., to a very vexing degree the problem of multiple sources for a given WFP remains. (For reviews of Lees [1960], see Krenn-Müllner [1968]).

8.2 Definitions in Sentences

Such definitions are not new, having been used sporadically, but inconsistently since Grimm (1878–98). Carr (1939) rightly saw the difficulty, stressing that the need was not for a *definition in a sentence*, but rather a *rephrasing which is truly indicative of the relationship between the Members* of a WFP. This insight, perhaps, anticipates the discovery made explicit in the GTA that the same deep structure grammatical relationships may underlie both a Comp. and a sentence or phrase. For the GTA, the empirical test of these abstract deep structures lies in the way they fit into the grammar as a whole, tested against a native speaker's intuition.

8.3 Intuition

Native intuition, of course, is precisely what is lacking in the older Gmc. languages. King (1969) suggests that this is not an insurmountable problem since much profitable research can be carried out in dead languages due to the existence of many 'universal' or 'near universal' features of syntax and that a certain amount of intuition about the language is communicated through the structure of the available corpus. In this regard, the difference between dealing with an extinct language like Go. and the oldest stage of a living language such as Icelandic is important. The latter might be an excellent choice for work on Gmc. syntax since native speakers of MnI have rather high accuracy when applying their intuition to the older stage, suggesting perhaps that the structure of the two is very similar.

The advantage in dealing with WF by transformations lies in their ability to account for semantic content not directly traceable to the

surface structure of a WFP or to its parts. Thus, MnGer. *bildschön* 'lovely' and *wasserdicht* 'water-tight' may be subsumed by the formula N + Adj. which accounts for the nature of the Roots involved and the similarity in surface structure. But this implies a semantic similarity which is non-existent, for *bildschön* may be derived from a phrase *so schön wie ein Bild* (traditionally called *Vergleichung*). *Wasserdicht*, however, does not follow this semantic pattern, but may be paraphrased *dicht gegen Wasser* (Fleischer 1969:222). The *bildschön* pattern is by no means recent, extending back at least to the predialect stage (Carr 1939: 60) and perhaps even into PGmc., hence such older Comps. as OE *gærsgrēne*, MDu. *grasgroene*, OHG *grasegruoni* and OI *grasgrœnn* 'grass-green', i.e. 'green as grass'.

There are two particularly important differences between the TA and the GTA: the use of syntactic and semantic features and of transformations which various words or Affixes may undergo.

8.4 Syntactic and Semantic Features

In both the HPA and the TA, some specifically syntactic features have normally been cited: N, Gender, etc., with others mentioned sporadically where appropriate. Along with the features above the GTA has tried to specify others such as ⟨animate⟩, ⟨count⟩, ⟨perfective⟩, etc. For example, Motsch (1967a:48f.) points out that the MnGer. Adjs. in *-lich*, *-ig*, and *-haft* could be compared, while those in *-bar* such as *unsinkbar* 'unsinkable' lack this property. The discovery of such features for these Suffs. is a refinement of the HPA & TA, whose analyses on a surface structure basis failed to distinguish them clearly. Such features undoubtedly will provide important selectional restrictions on the occurrences of Members in various WFPs. Since *-lich* is a reflex of Gmc. **-līka-* we would very much like to know which features (Comparison, etc.) were already present in Late PGmc. and which features have changed. Thus, the ascertainment of features is one of the major tasks in reconstructing the Gmc. Lexicon.

8.5 Transformations

While phrase structure rules specify the set of possible underlying structures, transformations arrange and order them by adjunction, substitution, or deletion. A grammar of Gmc. WF following the GTA would state the Roots in the Lexicon, the features peculiar to each Root, the phrase structure rule, and the transformations needed to produce the various WFPs.

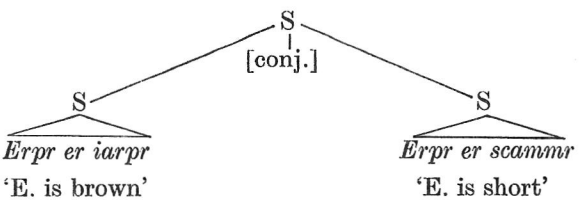
8.6 GTA and Comps.

The HPA divided Comps. into three categories: Cops., Dets., and Exos. (3.3ff.). All these categories may be defined in terms of the GTA. In the following, examples are from the *Hamðismál*, one of the oldest poems in the Poetic Edda.

8.6.1 Cops.

iarpscammr 'brown-short', i.e. 'brown and short' may be derived from a structure like that in Fig. 1:

Figure 1

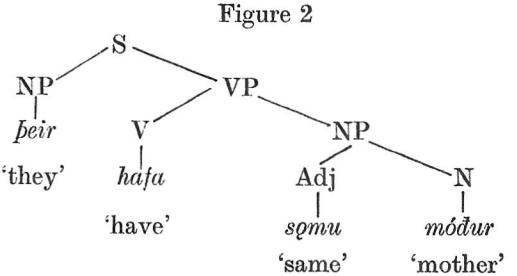


Thus in deep structure, Comp. Adjs. of this type derive from compound sentential structures.

8.6.2 Exos.

sammœðri '(having) the same mother' derives from a structure similar to that underlying the sentence *þeir hafa sǫmu móður* in Fig. 2:

Figure 2

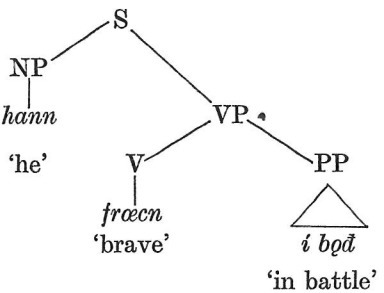


Thus, the HPA's 'semantic definition' that an Exo. has part of its meaning *outside* the Comp. is made explicit in a GTA analysis, i.e. the lexical items which ultimately make up the Comp. are *only part* of a whole sentence in deep structure.

8.6.3 Dets.

At first glance, this group is easily dealt with. Thus, *bǫđfrœcni* 'battle-brave' is derivable from a sentence like Fig. 3:

Figure 3



Here, the constituents of the Comp. are dominated by a VP. But it is necessary to stress that Fig. 3 represents an intermediate structure, not the final deep structure source. The challenge, therefore, lies in accounting for the large number of possible deep structure sources for Comps. of this type. (3.3.2 is suggestive, but neither exhaustive nor adequately formulated.) Finally, it can be seen that the traditional classifications turn out to a certain extent to correspond to the more explicit analysis possible within the GTA framework.

8.7 Application of Rules and Transformations

The rules and transformations, beginning with the deep structure, apply in linear order, producing a sequence of intermediate structures and ultimately a surface structure. This means that the GTA reverses the normal HPA's or TA's description. In the latter, normal procedure would have been to characterize a WFP and then make a few remarks about its semantics. But in an explicit GTA, it is necessary to show how the deep and surface structures are related and only then to insert the derivational endings and specify the root vowel. Thus, Go. *arbinumja* 'heir' would ultimately derive from a sentence (accepting Lehmann's (1972: § 2) view of Gmc. as an OV language at its earliest stage): *arbi nimiþ* 'he takes the inheritance'. Later, a phrase structure rule would assign the order: N + Vb. to the Comp., and an Agent Marker would be added and Ablaut specified in the Vb. Root, giving *numja* 'taker'.

8.8 Case Grammar

A refinement on the analysis of Go. *arbinumja* 'heir' would be a restatement in terms of Fillmore's (1968) case grammar, according to which the deep structure can be defined in terms of relationships to the Vb. This is useful in Gmc. WFPs. since, for example, Comps. which clearly share certain basic relationships in deep structure, could be classified without reference to such phenomena as the differing Preps. appearing in surface strings. Hence, Go. *arbinumja* would be a surface structure representing Fillmore's [V O], Go. *handuwaúrhts* 'handmade' [V I], etc., where V = Vb., and O and I represent Fillmore's Objective and Instrumental Cases respectively. The elucidation of these relationships is another important task in Gmc. WF.

9. Conclusion

In essence, the three approaches characterized above emphasize different aspects of WF. For the HPA the focus is on the history of a given WFP from IE to the dials. But with that one central question there can be many others and so much data that it has usually not been possible to use a consistent terminology or to clearly define the changes between the stages of the language or even to characterize constructions in a consistent way. The Descriptive and Historical Aspects were often confused, and definitions were given now on a morphological, now on a syntactic basis.

The TA has the advantage of narrowing the range of questions drastically since it excludes meaning and focuses on a clear description of each stage (IE, PGmc., each dial.) in terms of morphemes and the constructions into which they enter. Furthermore, it demands a clear descriptive terminology which adequately characterizes WFPs. Its disadvantages are its exclusion of meaning and its frequent over-insistence on the separation of historical stages.

In the GTA, on the other hand, the main focus is on the sentence, permitting a better characterization of WFP's relations to syntax. With its use of syntactic and semantic features it should help to capture more systematically many of the elements only randomly dealt with in the HPA. With its inclusion of meaning and its readiness to use historical data where needed it should help overcome some of the difficulties inherent in a strict TA. On the other hand, one may hope that the GTA will emulate the clarity of presentation and uniformity of terminology so characteristic of the TA.

By and large, sufficient attempts have been made to deal with Gmc. WF using the HPA: the IE or Gmc. Roots in a WFP are usually known;

the pattern's later history in the Gmc. dials. has been traced, and to some extent its relation to others is known; with less rigor the types of Constructions into which Roots enter have been classified (albeit at a most superficial level); and yet full descriptions according to the TA are lacking; and only tentative steps have been taken to propose a Relative Chronology for WFPs. within the proto-language; finally, it remains to uncover the Deep Structure and Semantic Features of Gmc. WFPs. according to the GTA.

Proto-Germanic syntax

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Outline

1. Syntactic frameworks 240
2. Syntactic types 241
3. Problems with syntactic theory and data 242
4. The data 243
5. Proto-Germanic phrase structure rules (PS-rules) 246
6. a Examples for lexical entries for verbs 250
b Examples of lexical entries for nouns 252
7. Proto-Germanic transformational rules 254
8. Conclusion 267

1. Syntactic frameworks

Most previous syntactic treatments of PGmc. have been implicitly based on a general framework which corresponds to Lat. grammar. Grimm, Winkler, Behaghel, Nygaard, Hirt, and other authors of syntactic compendia give examples of selected sentences, discuss syntactic classes and describe their uses in sentences. But they have not made explicit formalized statements about the syntactic structure of PGmc. Recent contributors to our understanding of syntax: Tesnière, Diderichsen, Chomsky, Greenberg, and Fillmore among others have concerned themselves with syntactic structures in much the same way as did the phonologists from Sievers to Trubetzkoy. They have aimed at formalized statements in accordance with syntactic principles common to all languages. A syntactic sketch produced today must therefore conform to a specific framework. The framework used here is transformational, of the format which has come to be known as a case grammar.

A case grammar format illuminates the Gmc. data. Under such a format the verb is regarded as the central entity of sentences. In simple sentences the verb is independent, in contrast with nouns, which exhibit various kinds of dependencies (Grimm 1870–98:4.294). Because of this view of sentences, the phrase structure rule for the proposition generates verbs which may be accompanied by underlying case forms of nouns. This rule for PGmc., PS-rule 4 below, is stated as follows:

Proposition → Verb (Agent) (Receptor)–or other possible underlying cases, which are selected in accordance with the entry of any given verb.

The functions of nouns are related to the particular verb of a sentence, in accordance with semantic and syntactic classes, regardless of overt indicators: prepositional phrases and morphologically marked cases are grouped together (Winkler 1896; van der Meer 1901; Fillmore 1968). The semantic classes, or underlying cases, which I have assumed for PGmc. are: agent, receptor, means, target, source, time, and place. As the Gmc. examples analyzed below will illustrate, the subject, objects, and adverbial expressions in sentences are generated from these nodes. In a language like PGmc., which is changing from morphological to prepositional indicators of cases, the continuity of development is accordingly well represented. For upon the loss of inflected case forms like the Instrumental, prepositional phrases replace earlier morphological markers. A transformational treatment of the syntax then allows us to present clearly the major shifts between the syntax of PIE and the syntax of PGmc., including its dialects.

2. Syntactic types

Greenberg's essay on syntactic typology (1966:73–113) has been particularly important in permitting us to determine the syntactic characteristics of individual languages, and to specify their changes. Among general principles of syntax we can propose that specific patterns of relationship between verbs and objects are correlated with other syntactic patterns in a given language. Thus, if a consistent language such as Turkish or Japanese has a basic clause pattern in which direct objects precede verbs (an OV structure), (1) it will also have postpositions rather than prepositions, (2) relative clauses will precede their antecedents as (3) will adjectives (which are transformationally derived from relative clauses) and genitival modifiers (Wackernagel 1926:6). Moreover, (4) comparative constructions will parallel clauses in having the standard precede the adjective, as in Vedic *ghṛtắt svắdīyaḥ* (Rigveda 8.24.20, an Archaic hymn) rather than MnGer. or E *sweeter than ghee*. Further, (5) OV languages lack prefixes. All of these patterns have been apparent to linguists dealing with the syntax of Vedic (Delbrück 1888; 1893–1900) and the syntax of Hitt. (Friedrich 1960). We may therefore reconstruct them for PIE, and assume that it was an OV language. Since the modern Gmc. languages are basically VO in type, the overall pattern of syntactic change in the Gmc. branch of IE was from an OV to a VO structure. In this development, PGmc. maintains OV characteristics, but it has also taken on numerous VO features.

Few typological studies of syntactic structures have been carried out, and accordingly we cannot make definitive statements about syntactic typology. One may place heavier weight on the position of embedded sentences than on the syntactic characteristics listed above (Grace 1971). By this view, embedded sentences can never follow the V in a consistent OV language, but in every sentence the verb must be final. Under this assumption, the early IE dialects, and consequently the ancestral language PIE, cannot be labeled a consistent OV language. I do not however view the position of embedded sentences as a decisive criterion for syntactic types, and accordingly I classify PIE and the early IE dialects, including PGmc., as OV. The position of embedded sentences in the texts available to us I account for as literary modifications. Hopper has called my attention to the OV language, Bashkiri, in which stylistic word order may have embedded sentences after verbs. Criteria like comparative constructions, postpositions, and prefixes are much more indicative of syntactic types because they are not modified for stylistic or literary effects.

3. Problems with syntactic theory and data

Syntactic students of early languages face the difficulty that all of the texts are literary. Our longest collection of early IE materials, the Rigveda, is even composed in strict metrical forms. In such material, stylistic criteria may take precedence over syntactic patterns (see Voegelin on Turkish, 1960:58).

Moreover, languages have marked as well as unmarked characteristics. Marked syntactic patterns are used in affective structures. Thus Watkins (1964) pointed out that in affective syntactic patterns of PIE the verb preceded its object. A statement of syntax must therefore distinguish between affective constructions, and the unmarked syntactic pattern which is basic for sentences in a given language. Since our early IE texts are literary, for example the Avesta, the Homeric poems, the Beowulf, the prose Brahmanas, the Hitt. and Umbr. texts, we must determine the basic syntactic structure of these languages with care. I attribute the widespread post-verbal position of embedded sentences to the literary style of the documents that have come down to us. Support for this statement will require a statement on PIE syntax.

Our procedures in determining the syntactic structure of a language must be similar to those applied in the classification of languages. The great comparative linguists (for example, Meillet 1937) have pointed out that the features characteristic of earlier dominant patterns of languages are discernable in anomalous patterns. E, for example, can unmistakably be classified as an IE language because in the *was: were* alternation it maintains a distinction between singular and plural stem forms which was characteristic of PIE. Moreover, when Hitt. was discovered, it was convincingly classified as IE because of its *r/n* declension, a pattern of alternation maintained in early IE dialects and reflected indirectly and vestigially in contemporary Gmc. dialects, some of which preserve the non-oblique *r* as in NE *water*, others the oblique *n* as in MnNorw. *vatn*. Since the early dialects maintain relics of the OV characteristics listed above, we may regard them as developed from a language of an OV syntactic type (see 2 above).

One construction in which syntactic structures are displayed is that of compounds (Lehmann 1969). These too suggest an OV structure for the early dialects. A notable advantage of using compounds to determine syntactic types is that they are not readily modified. Especially in texts which are translated, like many of those in the early Gmc. languages, the order of adjectives and genitives with regard to their nouns is readily influenced by the order of the source language. Even the order of objects and verbs must be suspect in translations, not to speak of complements.

But the order of elements in compounds, like comparative constructions, is a reliable indicator of syntactic types in much the same way as are deep-seated morphological characteristics, such as the *r/n* inflection.

Further difficulties are occasioned by the borrowing of syntactic structures, which is more common than the borrowing of phonological and morphological characteristics. Thus NHG has standardized final verb order in dependent clauses, largely through borrowing from Lat. syntax (Lehmann 1971). Such syntactic borrowings may lead to restructuring in a given language. After final verb order in dependent clauses was fixed, Ger. developed postpositions and other OV characteristics. And modern Indic languages, heavily modified by the Dravidian OV structure, are more predominantly OV than was classical Skt. Further, PScand. and Old Scand. were apparently influenced by languages of an OV pattern, so that literary texts expelled prefixes which have been demonstrated for an earlier stage of the language (Lehmann 1970). Accordingly, we cannot assume a simple, unidirectional syntactic development for any given language, whether from OV to VO or in any other pattern. For the influences of neighboring languages may affect syntactic structures.

Moreover, languages are not necessarily consistent in their syntactic type. E, for example, has the OV characteristic of adjectives preceding nouns, though it is generally VO. As noted above, Ger. is VO in normal clauses, and OV in subordinate clauses. And obviously, a language is not consistent in type when it is undergoing syntactic change. When word order is neither VO nor OV, I refer to the syntactic order as ambivalent (Lehmann 1972 b). Thus early Gmc. materials at one stage are ambivalent, reflecting OV patterns though developing toward a VO type. The Romance languages of Western Europe have developed to consistent VO languages.

Faced with these problems in our current understanding of syntax, and with the requirement to account for the linguistic development of the Gmc. branch from the presumed date of PIE (cir. 3000 B.C.) to the texts of almost four millennia later, we must regard any historical sketch of PGmc. syntax as highly preliminary.

4. The data

Although they are stylized statements, the early Ru. inscriptions because of their antiquity provide the best sources for our conclusions about the syntax of PGmc. On the basis of an inscription like that of Gallehus (400 A.D., Krause 1966: no. 43) we may propose an OV order for the PGmc. sentence.

ek hlewagastiR holtijaR horna tawido
'I HlewagastiR, the son of Holt, made the horn'

Other inscriptions support this conclusion, for example, that of Kragehul (500 A.D., Krause 1966: no. 27; I omit the magical abbreviations)

ek erilaR a(n)sugisalas muha haite
'I ErilaR am called Ansugisla's muha (follower)'
helmatalija hagala wiju big . . .
'helmet-destroying (?) hail (= destruction) I dedicate' . . .

The first line with the genitive *ansugislas* preceding *muha* exhibits the GN order of OV languages; the second line, with the adjective *helmatalija* preceding *hagala* demonstrates the AN order. Unfortunately, the Ru. inscriptions contain no relative clauses or comparative constructions; accordingly these characteristics of syntactic structure are unavailable in the earliest Gmc. texts. Moreover, the GN and AN orders do not apply for all inscriptions. The postposed *holtijaR* of the Gallehus inscriptions, which is adjectival, is a patronymic (Krause 1966:102). Because of the small number of Ru. inscriptions we cannot determine whether it is postposed because of an affective pattern, or whether like the OHG sequence, *Hiltibrant Heribrantes suno*, appositives in Ru. regularly followed the noun to which they were adjoined.

More precise distinctions are possible in the early materials of the other dialects, notably the archaic language of the Beowulf. As in the Gallehus inscription, finite verbs are avoided in the three first metrical lifts, and accordingly they are generally found in the final position of the metrical line, in accordance with a basic OV order. Klaeber (1953:xciv) states that 'in the matter of word-order the outstanding feature is the predominance according to ancient Gmc. rule, of the end-position of the verb.' But verbs may also stand initially, in affective patterns. When they do, they often alliterate, besides carrying metrical stress. A notable passage is Beowulf 658–60, with even the verb *haban* used in an affective sense (Lehmann–Tabusa:5–7):

Hafa nū ond geheald hūsa sēlest,
gemynde mærþo, mægenellen cȳð,
waca wið wrāþum!
'Have now and hold of halls the best
remember your fame your might make known;
watch against the enemy!'

This sequence of imperatives, in an archaic stichic passage, exemplifies a stylistic modification of the OV pattern which was used for affective purposes also in the Rigveda (Lehmann 1969:13).

Besides stating (1950:xciv) that 'the outstanding feature is the predominance . . . of the end-position of the verb,' Klaeber points out other

patterns in the Beowulf which are characteristic of OV languages. Among these are 'the frequency of the weak adjective (before nouns) when not preceded by the definite article, e.g. *gomela Scilding*' (xcii); genitives also frequently precede nouns; 'postpositions' may follow nouns, as in Beowulf 19 *Scedelandum in*. Similarly, in the early portions of the Anglo-Saxon Chronicle, verbs stand primarily in final position, genitives and adjectives precede nouns (Shannon 1964:13, 23, 27), and four 'prepositional phrases' have the 'object preceding the particle' (Shannon 1964:34). Accordingly, like the Beowulf, the oldest portions of the Chronicle manifest an OV order.

The assumption of an OV order for PGmc. is supported by the structure of the compounds of OE and the other Gmc. dialects consisting of a nominal and a verbal element in which the nominal element functions as the object of the verbal element. These compounds characteristically have the object preceding the verb, for example, Go. *gardawaldands* 'master of the house', ON *folklíþande* 'who travels among people, wanderer', OE *folcāgend* 'who leads people, chief', OS *folktogo* 'leader of people', OHG *manslago* 'murderer'.

Unfortunately, because of the few materials that have survived from the earliest periods, two other characteristics of OV order, comparatives with preceding standards and relative clauses preceding their antecedents, are rarely attested in the early Gmc. materials. Yet some of the most archaic Gmc. texts provide examples of them. An example of the standard preceding the comparative is found in Vsp. 64.1–2:

Sal sér hon standa, sólo fegra,
'A hall she sees standing, (from) the sun fairer'

In these constructions the dat. case marks the comparative (Small 1929:25). An example for OE is found in Beowulf 1850:

þæt þē Sæ-Gēatas sēlran næbban
'that than-you the Sea-Geats better do not have'

(Small 1929:38ff.; see also Delbrück 1907:206 and Lehmann 1972c). Constructions with particles, like those in the modern Gmc. languages, replace the OV comparative pattern in the dialects, as in ON, Sg. 55.3–4:

sú mun huítari enn inn heiði dagr
'she will be brighter than the brilliant day'

Yet the frozen expressions *ni þe haldis* of the Go. Skeireins (Bennett 1960:66) and *neo dana halt* of Hildebrandslied 31, preserve for us the old alliterative pattern 'not (from) that more, by no means'. Remarkably, the alliterative accent in Hildebrandslied 31–32 falls on the standard *dana*, as it does on the standard *sólo* in Vsp. 64; in this way metrical evidence supports the interpretation of *neo dana halt* as an archaic comparative phrase maintaining a strong accent on the standard.

Among the infrequent relative constructions preceding their antecedents are a few examples attested in ON (Heusler 1950:159), e.g. *en þat er hann sá augnanna, þá hugþesk hann falla mundo* 'but what he saw of the eyes, then he thought he would have to fall'.

Moreover, ON also contains postpositions (Heusler 1950:162; Lehmann 1971). Postpositions are maintained in ON, particularly in relative clauses, as in *hann hǿfþe alt, þat er hann skaut til* 'he hit everything, that he shot at'. As Heusler points out (1950:162) these have become prepositions in the other Gmc. dialects, including Go., so that the Go. *in þammei jah standiþ* 'in which you also stand' corresponds to ON *ok er þér standeþ í*. The Gmc. postpositions developed on the one hand into preverbs, on the other hand into prepositions as the OV characteristics of PGmc. were eliminated.

The OV characteristics in the earliest Gmc. materials, however, suggest that the parent language, PGmc., was OV in type. The syntactic phrase-structure rules must be fashioned accordingly.

5. Proto-Germanic phrase-structure rules (PS-rules)

Case grammars have encountered two problems: one superficial, though troublesome; the other, more fundamental. The superficial problem has to do with terminology. Although the underlying cases (which gave rise to the term 'case grammar') are semantically based, many of the terms for these semantic categories have been taken over from the established morphological labels. Panini avoided this problem, distinguishing between semantic (kāraka) and morphological (vibhakti) categories (Ananthanarayana 1970). Similarly I have introduced distinctive terms for the underlying categories. (See the chart on case names.)

The more fundamental problem concerns the interpretation of statements in syntactic works of the past. Like many nineteenth century students of syntax, Winkler refers to semantic uses of case-forms with the same terms as those used for morphological or surface forms. Moreover, his study exemplifies a widespread nineteenth century view that in the parent language, PIE, the cases had their real, natural meaning (Winkler 1896:2, 91–2, 313–6 et passim; see also Delbrück 1907:225–9). This unrealistic view of PIE has led to many confusions, which younger scholars may fail to understand (Fillmore 1968:20). If however we read with care the many nineteenth century syntactic studies, including those of Winkler, van der Meer, and Gaedicke, which are unformalized case grammars, we can profit greatly from them. These studies are particularly valuable for their data on the uses of verbs. Basing our grammars on such data, from which we can frame contextual rules, we will be able to make

more rapid progress in producing a PGmc. syntax than may have seemed possible from the restricted statements of introductory handbooks like Hirt's *Handbuch des Urgermanischen.*

The PS-rules for PGmc. must be arranged in such a way that more than one sentence can be conjoined. Accordingly, PS-rule 1 is an optional rule permitting the generation of a conjunction (Conj) and one or more clauses from the node Σ. The Greek letter Σ is used for sentence to distinguish this abbreviation from S for subject.

Each sentence consists of two components: modality (Mod) and proposition (Prop). The modalities that have been identified for PGmc. are: negative (Neg) or positive statements; questions (Q) or statements; emphatic (Emph) or non-emphatic statements; present or past tense; passive (Pass) or active voice; indicative (Indic) or non-indicative mood; and of non-indicative mood there are two possibilities, imperative (Imper) and subjunctive. These modalities are treated separately from the proposition because they affect all elements of the proposition, adverbial and nominal expressions as well as verbal expressions.

The rules for the proposition have been discussed in section 1 above, except for rule 6, which permits the embedding of sentences.

The PS-rules are as follows:

1. $\Sigma \rightarrow$ Conj Σ^n (rule optional; $n \geq 2$)
2. $\Sigma \rightarrow$ Mod Prop
3. Mod → [± Neg] [± Q] [± Emph] [± Past] [± Pass] [± Indic]

3a. [— Indic] → [± Imper]

4. Prop → V (Agent) (Receptor) (Means) (Target) (Source) (Time) (Place)
5. Case conversion rules

Agent → { NP | [Nom]/ + act . . . | NP Agential | [Dat] postposition }

Receptor → { NP (tô) | [Dat] | NP Directional | [Acc] postposition }

Means → { NP Agential | [Dat] postposition | NP þerha | [Acc] | NP | [Inst] }

Target → { NP / [Acc] / [Dat]/^{V}Dat . . . / [Gen]/^{V}Gen . . . / [Nom]/-Act . . . }

Source → NP Postposition
[Dat] of origin

Time → { NP Temporal / [Dat] postposition / NP / [Gen] / NP / [Inst] (ana) / NP / [Acc] }

Place → NP Spatial
[Dat] postposition

6. NP → (det) (Σ) N

Chart on case names

It is difficult to equate the names used by various scholars for kāraka categories; the following lists give some of the major correspondences. The vibhakti terms are represented here with the designations found in western grammars of Skt.

This study	Panini kāraka	Panini vibhakti	Fillmore 1968	Behaghel, Winkler, van der Meer	Delbrück 1893:172–188
Agent	kartā	Nominative, Instrumental	Agentive	Nominative	Instrumental, Genitive
Receptor	sampradāna	Dative	Dative	Dative	Dative
Means	karaṇa	Instrumental	Instrumental, Comitative	Instrumental	Instrumental, Ablative

This study	Panini kāraka	Panini vibhakti	Fillmore 1968	Behaghel, Winkler, van der Meer	Delbrück 1893:172–188
Target	karma	Accusative	Objective, Dative (Animate), Factitive	Accusative	Accusative, Dative
Source	apādāna	Ablative		Ablatival dative, Genitive	Ablative
Time	(adhikaraṇa)	(Locative)		Locatival dative	
Place	adhikaraṇa	Locative	Locative	Locatival dative, Genitive	Locative, Genitive
					Nominative
					Vocative
				Genitive	Genitive

Notes on the PS-rule 5:

1. Agential postpositions are: *frama, með, mið*
2. Directional postpositions are: *aƀur, after, afteri, ana, en, fur, fura, furî, gagana, uƀer, umƀi, unðer, wiþra, þerha.*
3. Postpositions of origin: *aƀa, af, frama, us, uz*
4. Temporal postpositions: *after, ana, fur*
5. Spatial postpositions: *ana, ƀî, ƀi, en, uƀa, uf, unðer, wiþra*

Taking as example one of the earliest Ru. inscriptions, *hagiradaR tawide*, (Garbølle, cir. 400 A.D.; Krause 1966: no. 30) we may propose for it the following description. I follow the reading which interprets the symbol after R as a word-divider, and I assume that in this inscription the object was implicit: 'HagiradaR made (it)'.

$\Sigma \rightarrow$ Mod Prop
Mod $\rightarrow$ – Neg – Q – Emph + Past – Pass + Indic
Prop $\rightarrow$ V Agt
Agt $\rightarrow$ NP / [Nom] + act . . .

In this derivation the node Agent selects an NP in the nom. because of the –Passive node in the Modality rule. In sentences with more 'case'

nodes, the surface forms are selected also by means of criteria included in the lexicon. A fuller statement on selection of sub-rules, prepositions, and surface cases will not be included here.

Number in the verb form will be introduced by a transformational agreement rule. The agreement rule is so stated that it applies to adjectival constructions as well, and accordingly includes gender and case features which are not expressed in non-adjectival (⟨+V⟩) verbs; in its complete form, the rule would be more extensive than in the form given here.

$$V \Rightarrow \quad \_\_\_\_ \quad / \quad NP \quad \_\_\_\_$$

$$\begin{bmatrix} \alpha \text{ person} \\ \beta \text{ number} \\ \gamma \text{ gender} \\ \delta \text{ case} \end{bmatrix} \qquad \begin{bmatrix} \alpha \text{ person} \\ \beta \text{ number} \\ \gamma \text{ gender} \\ \delta \text{ case} \end{bmatrix}$$

Since the NP *hagiradaR* is ⟨+Sg⟩ and not a first or second person pronoun, the verb form (already specified as past ind.) adds the 3 sg. ending *-e*, yielding *tawide*.

To generate more complex sentences, like that of the Gallehus inscription PS-rule 6 would be required in adding the appositives *hlewagastiR* and *holtijaR* to the central structure: Agent Target V. Without such additional rules the sentence would have been: *ek horna tawido*. Rule 6 would also be used in adding to the central structure: Agent Target Time V of the first two lines of the Beowulf the descriptive *Gār-dena* and *þēodcyninga:*

Hwæt, wē Gār-dena in gēardagum,
þēodcyninga þrym gefrūnon,

Without the additional rules the sentence would have been: *wē þrym in gēardagum gefrūnon* 'we heard about glory in past days'. Rearrangement of the Time component would result from metrical rules; for the poet had to alliterate the accentual syllables in order to conform with this metrical pattern.

In this way the phrase-structure rules presented above produce the underlying strings of PGmc. sentences, as illustrated here with selected sentences in the early dialects. The underlying strings are then modified by transformational rules, some of them stylistic and metrical.

6.a Examples of lexical entries for verbs

Many of the characteristics of verbs are described in the handbooks, as for the Go. vocabulary by van der Meer. For OS see Sievers 1878; 1935:482–90. Taking as example the cognate of the verb in the Gallehus

inscription, we may give the following lexical characteristics, on the basis of its uses in Go. sentences like Luke 5.33: [*duhve siponjos*] . . . *bidos taujand* '[why do the disciples] make prayers?'

PGmc. tawjan- (Go. taujan, Ru. tawi . . ., MLG touwen, OHG zawjan; Torp-Falk 1909:166, van der Meer 1901:13–14)

⟨+Vb⟩
⟨+V⟩
⟨+action⟩
⟨Agent Target —⟩

Various classes of verbs will be set up, in accordance with their contextual rules, as the data in van der Meer and other descriptive treatments of the Gmc. dialects indicate. Another prominent class includes a Receptor as well as an Agent and a Target, as may be exemplified by Go. *giban;* John 13.26 *sa ist þammei ik ufdaupjands þana hlaif giba* 'It is he to whom I, having dipped, give this bread'. For others, see van der Meer 1901:70ff.

Adjectives functioning like verbs may also be accompanied by a Receptor; see van der Meer 80–1. An example is Go. *aglus*, as in Mark 10. 24: *hwaiwa aglu ist þaim hugjandam afar þaihau in þiudangardja gudis galeiþan* 'how difficult it is for those yearning after wealth to enter into the kingdom of God!' The lexical entry would be:

PGmc. aglu- (Go. aglus; cf. Go. agls, OE eg(e)le)
⟨+ Vb⟩
⟨— V⟩
⟨— action⟩
⟨Receptor Target —⟩

As an example of verbs accompanied by Means, we may cite Go. *qiþan*, as in Luke 8.28: *jah stibnai mikilai qaþ: hva* . . . 'and with a great voice said: What . . .' The contextual rule for such verbs would be ⟨Agent Means Target —⟩. As an example of verbs accompanied by Place, we may cite Go. *maurnan*, as in Matthew 6.25: *ni maurnaiþ saiwalai izwarai hva matjaiþ* 'do not worry in your mind about what you eat . . .' The contextual rule for such verbs would be ⟨Agent Target Place —⟩.

In a short sketch, the extent of the classes of verbs can only be suggested. A thorough description is one of the essential tasks of Gmc. syntax. As I have suggested above, such a description will be greatly assisted by the case studies of the nineteenth century. The classifications in dictionaries such as those of Cleasby-Vigfusson and Bosworth-Toller are also useful. Nonetheless, a statement of the contextual rules will not be simple. For the classifications in these older works, some of which are frankly

taken over here, may be based too largely on surface characteristics. Among other problems, individual verbs often follow several patterns. Thus, in the last section of his book, van der Meer discusses verbs which have different meanings depending on the case accompanying them (1901:188–98); for example, Go. *hausjan* with the dat. means 'hear/obey', with the acc. 'hear/perceive'. We may propose that when 'hear' is accompanied by the semantic feature [OBEY], the marking [Dat] will be introduced, leading to a contextual rule requiring the dat. rather than the acc. case.

Yet the complexities are limited. Of the seven kāraka categories, more than four with any verb are difficult to find. For an example see Heliand 3674: *imu biforen streidun thene uueg mid iro giuuâdiun* ... '[they] before him covered the way with their clothes'. The contextual rule is ⟨Agent Means Target Place —⟩; the agent has no surface form in this OS passage. The various constructions in OS are given by Behaghel (1897), though largely by surface characteristics. Yet Behaghel's Syntax (1897), used in conjunction with the studies mentioned above, provides much data for a grammar of PGmc. based on semantic as well as syntactic and morphological criteria. References to these works could be given in virtually every paragraph below; I refer only to Behaghel's *Syntax*.

6.b Examples of lexical entries for nouns

Like verbs, nouns must be listed in the lexicon with inherent features. Of their inflectional characteristics, case is regulated by contextual features associated with individual verbs. An inherent feature of all PGmc. nouns is their gender, though in part the stem form of individual nouns correlates with gender.

When applicable, as for participial and adjectival forms, the gender features regulate verbal forms by the agreement rule. The number characteristics of sentences and phrases are also determined by nouns, associated with verbs by means of the agreement rule. Nominal elements also determine the person category of verbs in sentences.

The gender and declension characteristics of PGmc. nouns are well-described in the handbooks. Inherent features on the other hand have not been investigated; the sampling given below for PGmc. nouns, and for nouns in the early dialects, has been determined largely by extrapolation from their reflexes in the modern languages. As examples of lexical entries for nouns we may list those for PGmc. *wiðuz* 'tree, wood, lumber', *erþō* 'earth', and *wīƀa* 'wife, woman'.

wiðu- (ON viðr, OE wudu) erþō (ON jǫrð, OE eorð) wība (ON vif, OE wif)

⟨+ N⟩	⟨+ N⟩	⟨+ N⟩
⟨+ Masc⟩	⟨+ Fem⟩	⟨+ Nt⟩
⟨+ Common⟩	⟨+ Common⟩	⟨+ Common⟩
⟨+ Concrete⟩	⟨+ Concrete⟩	⟨+ Concrete⟩
⟨— Animate⟩	⟨— Animate⟩	⟨+ Animate⟩
(⟨+ Count⟩)	⟨— Count⟩	⟨+ Count⟩
⟨+ Collective⟩	⟨+ Collective⟩	⟨— Collective⟩

Parentheses are used around a feature of *wiðuz* because this entry can be either ⟨+ Count⟩ or ⟨— Count⟩; when the homonymous entry has the features ⟨— Animate⟩ ⟨— Divisible⟩, the noun is neuter, as in OHG and MHG.

If features like those illustrated above are provided for verbs and nouns, the primary components of simple sentences like those in the following lines from an OE charm can be generated.

Sitte gē, sigewīf, sīgað tō eorþan!
næfre gē wilde tō wudu fleogan!
'Sit down, victorious women, sink to the earth!
Never wish to fly to the woods!'

The first clause of a presumed comparable sentence in PGmc. is determined as follows by the PS-rules given above:

Mod → — Neg — Q + Emph — Past — Indic + Imper
Prop → V Agent
Agent → NP
[Nom]

PGmc. **sitjan-* has many of the same features as those listed above for PGmc. **tawjan-*, but its contextual rule only requires an Agent. A transformational rule provides the verb-first word order (see 7.18 below): a contextual rule regulates the use of the sg. verb form before its pl. pronominal subject.

Since the pl. of the etymon of *sigewīf* has the features listed for PGmc. **wība*, they are not repeated here. As a voc., it is reduced from the sentence: **juz . . . wībā*. (modifiers omitted)

The clause *sīgað tō eorþan* is generated much like the first clause; in it the Target is modified to a surface phrase introduced by *tō*. For generating the second long line of this citation, additional transformational rules are needed. Among these are the complementation transformation rule, and the negative transformation rule, both of which will be sketched below.

7. Proto-Germanic transformational rules

In the brief space allotted, only a few excerpts from the transformational component can be included. The transformational rules chosen for lengthier discussion may illustrate some of the topics which must now be studied in the history of PGmc. and its dialects.

The rules will be illustrated by means of quotations, with no attempt to reconstruct these quotations in PGmc. The quotations selected are assumed to be representative of PGmc. syntactic patterns, which would be reconstructed on the basis of all the Gmc. languages. For brevity, I cite here only examples from OS, such as the following from the Heliand; citations are from Sievers' edition, and the Monacensis text when it is available. This section provides examples illustrating the need of some of the first rules in the transformational component.

7.1 Transformational rule 1: conjunction reduction

2256 *Tho hi te themu uuinde sprac*
ge te themu seuua so self endi sie smultro het
bedea gebarean.
'Then he spoke to the wind
and to the sea as well and ordered them gentler
both to behave.'

The first two half-lines represent a reduction of the syntactic sequences underlying two parallel clauses:

hi te themu uuinde tho sprac
hi te themu seuua tho sprac

Conjunction reduction is carried out on these two sequences which are linked in accordance with PS-rule 1: $\Sigma \rightarrow$ Conj Σ Σ.

T-1 contains various rules. Identical conjuncts are collapsed by a rule like the following: X [Conj $Z_1 \ldots Z_n$] Y

1	2	3	4	⇒
1	Ø	3	Ø	

Z = anything conjoined; $Z_1 = Z_n$, standing here for the segments underlying *hi . . . sprac.*

Various modality constraints affect this rule. Clauses which are unlike in the modalities of question and mood cannot be conjoined. Clauses differing in negation or tense may be conjoined only if at least one PS-structure component is identical, usually V. If sentences with + Emph

are conjoined, the emphasis must be attached to identical elements, either to verbs or kāraka categories.

In contrast with the modern Gmc. languages, however, the features of entities in the proposition need not be identical. For example, in the Anglo-Saxon Chronicle 755, the second conjoined element is a pl. yet the verb remains sg.: *Her Cynewulf benam Sigebyrht his rīces & West Seaxna wiotan* 'At this time Cynewulf and the rulers of the West Saxons deprived Sigebyrht of his territory'. Moreover, although the form *wiotan* is no more clearly distinguished as nom. rather than acc. than is the MnE form 'rulers', this pattern of conjoining is quite possible in OE, though not permitted in MnE; preservation of the OE word order into MnE would falsify the original: 'Cynewulf deprived Sigebyrht of his territory and the West Saxon rulers'. In OS as well, sg. number of the verb is maintained if the conjunction stands between two subjects, as in Heliand 2477 *endi imu thiu uurð bihagod endi uuederes gang* 'and the soil and the course of the weather (is) favorable to it'. (See Behaghel 1897:101–6 for further details on congruence.) We may then propose the rule for PGmc.

$$A + Vb_{sg} \,\&\, B + Vb_{sg} \Rightarrow A + Vb_{sg} \,\&\, B$$

By contrast, the rule for MnE is

$$A + Vb_{sg} \,\&\, B + Vb_{sg} \Rightarrow A \,\&\, B + Vb_{pl}$$

We may assume that the pattern persisted into OE and the other early dialects from the time of PGmc., when it was less likely to lead to ambiguity; for in PGmc. the nom. and acc. pl. forms of many nouns differed, as the *n*-stems do in ON.

The consequences of conjunction accordingly provide many problems. For example, the processes of conjunction may have been more clearly indicated in PGmc. than in the early dialects, and in the modern dialects. For PGmc. had at least two conjoining particles: PGmc. **jah*, Go. *jah*, OE *ge* and PGmc. **anðī*, ON *en*, OE *and*, as well as the etymon of Go. *-uh*. **jah* may have been used when sentence conjunction resulted in deletion of identical items; **anðī* on the other hand may have been used for sentence conjoining when reduction was not involved. The subsequent use of reflexes of **anðī* for all of these functions has resulted in a highly complex grammar for conjunction in the modern Gmc. dialects. If in PGmc. a separate conjunction was used for phrasal conjoining, as in OS *sten endi berg, frod endi filuwis*, and when no reduction was involved, OS *bog endi bedode endi bad gerno*, the rules for conjunction would have been less complex. The topic needs study. Yet many syntactic patterns are clear. For example, an NP consisting of contiguous conjoined NP's required

pl. number in the verb; and nominal modifiers were in neut. gender unless the conjoined nouns agreed in gender. Rules for conjoining with other conjunctions, for example PGmc. **ak*, Go. *ak*, OE *ac* may require reordering of the underlying sequences, but as for **anðī* reduction is not mandatory.

7.2 Transformational rule 2: complementizer placement

Heliand 2257 b and 2258 a *endi sie smultro het bedea gebarean* illustrate one type of predicate complementation in Gmc. One variant does not require an acc. as subject of the inf., as in Heliand 3840 b–3841 a *hetun thar ledien ford en uuif* 'they commanded there to lead forth a woman'. Another type of complementation is accompanied by a *that* construction and a finite verb: 596 a *het that uui im folgodin* 'he commanded that we should follow it'. In the most explicit complementation structure with *hetan*, the verb has an object and a *that* construction, as in Heliand 2032, 2034:

Het tho thea ambahtman idiso sconiost
that sie thes ne uuord ne uuerc uuiht ne farletin
Gave orders then to those servants the most beautiful of women
that they neither word nor deed of this nothing should fail to carry out.

This explicit structure may be compared with the use of *hetan* with two objects, as in 4236 b–4237 a: *hetun ina Iudeo liudi Oliueti bi namon* 'The people of the Jews referred to it as Olivet by name'. *hetan* in this sense: 'attach something to, recommend something to' is accompanied by an Agent, a Receptor *(ina)* and a Target *(Oliveti)*.

In the complementation structure most similar to this construction, and I assume accordingly the oldest, *hetan* takes the demonstrative *that* as Target. In accordance with this assumption a less complex form of Heliand 2032, 2034 would be **idiso sconiost het thea ambahtman that* 'the most beautiful of women ordered those servants (to do) that'. An appositional clause could have been associated with *that*. Subsequently the demonstrative *that* was shifted to the appositional clause, and this became subordinate. This syntactic shift results in the PGmc. complementation structure which is most explicit.

After the shift, the T-rule for complementizer placement is as follows:

× Agent Receptor [Target] V Y
1 2 3 4 5 6 ⇒
1 2 3 5 that 4 6 Condition: 5 = V + *that*

In this construction the Σ after *that* may be any sentence in which the subject has the same reference as the Receptor in the complementizer construction. The complement sentence may be rearranged, and modified in tense and mood; *farletin* is pret. opt.

By one modification, tense and mood may be eliminated; the verb in the complementizer clause is then non-finite. This is the complementation construction of Heliand 2257b and 2258a, which are derived from the structures underlying the sentences: *hi sie bedea (that) het–sie bedea smultro gebareað* 'he commanded them both that they conduct themselves more quietly'. This complementation rule is as follows:

× Agent (Receptor)	Target	V	Y
	$_S$[Agent	W V]$_S$	
1 2 3	4	5 6 7	8 ⇒
1 2 3	4 7	5 6 [+ Inf]	8

As in Heliand 3840 *hetun thar ledien ford en uuif* 'they commanded there to lead forth a woman', this type of complementation may be made without a Receptor implicitly stated. For that reason, (Receptor) is marked as optional in this complementation rule.

Complementation structures have changed considerably in the IE languages, as E illustrates. These changes have not yet been described adequately, even for a thoroughly studied language like E. The *-ing* complementizer construction, as in *She disliked neglecting the work, She disliked Peter's neglecting his work* is one of the major innovations in E syntax. Though there have been several large studies of the *-ing* form, satisfactory accounts of the development of its uses in these constructions are only now being provided (see Nickel 1966).

Problems in determining the history of complementation structures in PGmc. also require considerable study. Since we assume that the *that* complementation is relatively late in PGmc., we must attempt to determine earlier constructions. In late PIE, these were infinitival, to judge by the patterns in Indo-Iranian. But infinitives themselves are very late in PIE, as is demonstrated by the variety of morphological markers in the ancient dialects: Indic *-tum, -e*, Gk. *-ein*, and so on. PGmc. on the other hand is notoriously deficient in infinitives. The inf. which we find in the Gmc. dialects is an acc. of a non-finite verbal form which among other uses may be the target of selected verbs.

The most frequent verbs used with inf. complements are those which have come to be known as the preterit-presents. It is instructive to examine the verbs which have developed in this way; for brevity, only the reflexes in one dialect will be given here: Go. *wait*, *kann* 'know'; *man*

'intend'; *mag* 'control'; OE *mōt* 'be able'; Go. *skal* 'be necessary'; *þarf* 'be necessary'; *daug* 'be sufficient'. These verbs, like OS *hetan* 'call, command', *lerian* 'point out', *findan* 'find' are aspectually punctual. The development of this complementation structure in PGmc. may help us understand the remarkable fixing in Gmc. of selected preterits as new pres. tense forms. As the examples with *hetan* illustrate, PGmc. developed a complementation construction which consisted of a punctual verb plus an inf. Some verbs which did not have punctual meaning in the pres. or *e*-grade form, such as *weyð-* used the pret. or *o*-grade in these complementation constructions; eventually these preterits were dissociated from the presents, and used as auxiliaries. Inf. complementation in early texts, such as the OE Saturn 230 *Ic can eow læran* 'I understand/know to teach you' is similar in construction to a nominal object as in Genesis 583 *Ac ic cann ealle swa geare engla gebyrdo* 'But I know all so completely the angels' nature'.

In a further complement construction an inflected inf. may be used after preterit-presents, as in Heliand 2530 b–2531 a *Nio hie so uuido ni can te githenkeanne* 'Nor can he imagine so much'. This construction parallels complement constructions with verbs other than the preterit-presents, as in Heliand 2432 b–2433 *'Ni mende ik elcor uuiht' quad he, 'te bidernienne dadio minaro'* 'I did not mean to conceal anything at all of my deeds'. The parallelism supports treating the preterit-presents as verbs which function syntactically like many PGmc. verbs based on pres. stems; only later did the preterit-presents develop into a separate syntactic subclass. Classification of the preterit-presents with other verbs introducing inflected forms is supported by another construction in which verbs indicating motion are accompanied by infinitives, as in Heliand 2647 b–2648 *Than forun thar thea liudi to obar al Galilæo land that godes barn sehan* 'Then the people traveled there throughout the entire land of Galilee to see that child of God'. Other such verbs besides *faran* are *gangan, kuman, siðon, giuuitan.*

In addition to infinitives, participles may also be used in complement constructions, as in Heliand 5672 b *(sia) libbiandi astuodun* 'they arose living'. The origin of this use is probably appositional, for the participles are often similar in meaning with the finite verb, as in Heliand 5961 b–5962 a *Thuo quam im thar thie helago tuo gangandi godes suno* 'Then came there to them walking the Holy One, God's Son', and in Heliand 4071 a *griat gornundi* '(she) wept mourning'. Eventually as numerous occurrences like Heliand 5662 may illustrate, for example Heliand 2574 b–2575 a *Thuo stuod erl manag, thegnos thagiandi* 'Then stood many a man, lords thinking', the finite verb came to be less important than the non-finite which was used in the complement.

The most widespread verbs used in constructions which placed greatest semantic weight on the verbal complement are OS *uuesan*, *uuerðan* and *hebbian* and their cognates, as in Heliand 5524 *that thia muoder thes mendendia sind* 'that the mothers are (will be) rejoicing at this', Heliand 720 b–721 a *Tho uuard im thes an sorgun hugi, mod mornondi* 'Then became for him his mind in sorrows at this, his mood mournful'. Since we find such complement constructions with *wisan* and the past part. in Go. passages which are not direct translations of the Gk., we may assume that this type of complementation existed already in late PGmc.; compare Matthew 5.21 *hausideduþ þatei qiþan ist þaim airizam* ἠκούσατε ὅτι ἐρρέθη τοῖς ἀρχαίοις 'You have heard what was spoken to the ancients'. Benveniste (1966:205–7), using examples especially from Heusler, concludes that these periphrastic verb forms developed within Gmc. and are not due to external influence; he notes the inflected participles of these constructions in ON verse *hefe ik þik nu mintan* 'I have now reminded you' in contrast with the prose *hefe ik þik nu mint*. OS examples of the three auxiliaries are: Heliand 895 b–896 a *Ic bium an is bodskepi herod an thesa uuerold cumen* 'I have come hither on his message to this world'; Heliand 5794 b–5795 a *So thiu fri haƀdun gegangan te them gardon* 'When the women had gone to that garden'; Heliand 12 b *sia uurðun gicorana te thio* 'they were chosen for that'; Heliand 4280 b *noh uuirdid thiu tid kumen* 'the time will still come'.

The periphrastic constructions which have become central components of the verbal paradigm in the dialects, whether as perfects, futures, or passives, accordingly have their origin in complement constructions in PGmc. Determining the times at which they became independent constructions is a problem for specialists in each of the early dialects. It would be scarcely justifiable to speak of a periphrastic passive construction, for example, until a method came to be fixed for indicating the agent of passive constructions. Examining the incipient passives in the various dialects from this point of view provides fascinating problems, for example the time of their origins.

7.3 Transformational rule 3: Equi-NP-Deletion

Many instances of complementation involve strings with two equivalent NP's. An example is Heliand 2417–2418 a *Tho bigan is thero erlo en fragoian holdan herron* 'Then one of those men began to ask his dear lord for this'. Two strings, representing the following sequences, underlie this sentence:

A. *Tho thero erlo en hwat* (indef) *bigan*
B. *thero erlo en holdan herron is fragoda*

The string for sentence B is inserted in the Target node of sentence A, which for the sake of clarity is filled here by the indefinite pronoun *hwat*. The resultant modifications are like those in the modern Gmc. languages. The rule applies also to sequences like Heliand 2578–2579a *Badun tho so gerno godan drohtin antlucan thea lera* 'They requested then very earnestly the good Lord to illuminate the lesson'.

The complexities in the application of T-rule 3 derive largely from its application after the case conversion rules. For in sentences like Heliand 2578–2579a the surface cases of the two underlying strings would differ; 'the good Lord' has as surface case the acc. in the first sentence, but if the second sentence had been completed it would have the nom. in it. Accordingly the case conversion rules would not apply to embedded sentences before this and other transformational rules.

7.4 Transformational rule 4: Agreement

As was noted in the section on lexical entries, number, person, and gender features of verbal forms are determined by these features in accompanying nominal constructions. Beginning with the simplest instance of agreement, that of a finite verb with the subject of its sentence, we may propose an agreement rule as follows:

$$V \Longrightarrow \underline{\quad} \begin{bmatrix} \alpha\,\text{person} \\ \beta\,\text{number} \\ \gamma\,\text{gender} \\ \delta\,\text{case} \end{bmatrix} \Big/ \text{NP} \underline{\quad} \begin{bmatrix} \alpha\,\text{person} \\ \beta\,\text{number} \\ \gamma\,\text{gender} \\ \delta\,\text{case} \end{bmatrix}$$

Only the first and second personal pronouns would be specifically marked for the person category, and accordingly all nouns would require third person verb forms.

With finite verbs, the gender and case features are not overtly marked. But gender and case must be noted for each verb to account for the use of participial and other adjectival constructions; actual generation of the form would not be carried out until later, however, so that incorrect forms would not be produced. If the verb remained finite, the gender and case markings would be disregarded (see 7.13). But the agreement rule would have to be so amplified that it would permit selection of the number category by reference, not only by the explicit subject, as for *gihordun* in Heliand 3782b–3784 *Stod ine uuerod umbi, grot folc Iudeono, gihordun is godan uuord, suotea seggian* 'The people stood about him, the great nation of the Jews, they heard his good word, comforting things said'. The data are well described in the handbooks.

7.5 Transformational rule 5: *þar* insertion

The PGmc. *þar* insertion rule is like that of contemporary E. Sentences with a copula may undergo this rule; the copula then is moved between the *þar* and the subject as in Heliand 571 b–572 a *Thar ni uuard sidor enig man sprakono so spahi* 'There has never since been any man so wise of speech'. This rule must follow the agreement rule, because the copula agrees in number with the subject. On the other hand it must precede the inversion of verbs before subjects after initial negatives, as in Heliand 5400 b *ni uuas thar is gimaco huergin* 'There was no equal to him anywhere'.

7.6 Transformational rule 6: *it* insertion

Heliand 243–245 b provides an example: *Tho ni uuas lang aftar thiu, ne it al so gilestid uuard so he mancunnea . . . forgeben habda* 'Then it was not long after that until it was entirely carried out just as he had promised mankind'. 'His promise' expanded to 'what he had promised' is replaced by *it*, and extraposed. The rule is like T-rule 5 in resembling the rules in the modern dialects.

7.7 Transformational rule 7: negative placement

Heliand 243 a provides an example of negative insertion before the verb. Another example without adverb preposing is Heliand 226 *'Ni gibu ic that te rade' quad he, 'rinco negenun'* 'I do not give that as advice, said he, to any of men.' Inserted in a string consisting of Agent Receptor Target V, the negative is placed initially and occasions verb movement to the directly following position.

7.8 Transformational rule 8: relative clause formation

As is well-known, PIE relative pronouns left no direct reflexes used as relative pronouns in PGmc. The basic 'relative clause' pattern in PGmc. is indistinguishable from a coordinate demonstrative clause. Early PGmc. may not have contained a distinct relative formation. As in texts of the dialects the Gmc. relative clause construction may have consisted simply of two paratactic clauses sharing a common element, as in Otfrid I. 17. 74 *in dróume sie in zélitun then weg sie fáran scoltun* 'In a dream they told them the way they should travel'. Two paratactic clauses may have contained a common element such as *then weg*, and in one of them it could have been deleted by Equi-NP-Deletion.

The common element could have been a demonstrative, as in Heliand

1314b–1315a *Salige sind oc undar thesaro managon thiodu thie hebbiad iro herto gihrenod* 'Blessed (they) are also among this numerous people they (who) have their heart cleansed'. In some constructions, such a demonstrative could have replaced the second occurrence of the shared elements.

It may therefore be difficult to decide whether the clause is demonstrative or relative, as in the following OE example: *se hearpere, ðæs nama wæs Orfeus hæfde an wif, seo wæs haten Eurydice* 'the harper, his (whose) name was Orpheus, had a wife, she (who) was called Eurydice'.

To distinguish relative clauses from demonstrative clauses, a particle was introduced, such as *er* in Hávámal 50.1–2 *Hrørnar þǫll, sú er stendr þorpi á,* 'dies the fir-tree, which stands on the hill'. We may assume that this device was late, because the particle varies from dialect to dialect: Go. *-ei*, ON *es/er*, OE *þe*, OS *the*, OHG *thar* (Wilhelmy 1881:20ff.). For late PGmc. we can posit a relative construction with such a marker.

7.9 Transformational rule 9: relative clause reduction

As in the modern Gmc. dialects, relative clauses with copulas could be reduced, yielding adjectival phrases and simple adjectives. Thus the postposed adjectival phrase *so arma* in Heliand 2992–2993a *that thu sie so arma egrohtfullo uuamscadon biuueri* 'that you mercifully protect her (who is) so poor from the evildoer' was a reduced form of clauses like that in Heliand 1301–1302a *man an thesoro middilgard thie her an iro mode uuarin arme thurh odmodi* 'men on this earth, who here in their minds were poor through humility'. When such reduced relative clauses consisted simply of adjectives, they were preposed, in accordance with the OV structure of PGmc.

Unlike the modern Gmc. dialects, the distinction between restrictive and non-restrictive modifiers was marked in adjectives, with the wk. inflection indicating a restrictive relationship and the strong a non-restrictive. We may therefore assume such a distinction in non-reduced relative clauses, though the means of marking it are not known.

7.10 Transformational rule 10: possessive formation

Possessive relationships of two types could be indicated in PGmc.; I cite examples from OS, even though the two types are not consistently distinguished in the Heliand. Inalienable possession or ownership was expressed by means of the copula *wesan* and the dat., as in Heliand 3767b *uuas iru enuald hugi* 'she had a steadfast mind'. The statement is about the widow who had given her last mite for charity; use of the dative with *wesan* indicates a permanent attribute of hers.

On the other hand, *haben* with the acc. is used to indicate alienable possession. When for example Jesus had tested the Canaanite woman and found she had 'good will,' this construction was used; it indicates that she had met the test at the moment, though earlier there were doubts concerning her faith. Heliand 3024 *Uuela that thu uuif habes uuillean goden* 'It's well that you, oh woman, have good will!' Another example of this use refers to Peter, Heliand 4690b *thu habis thegnes hugi* 'you have the mind of a nobleman'. Since this statement was made when Jesus was aware of Peter's impending denial, it can scarcely indicate inalienable possession.

7.11 Transformational rule 11: possessive clause reduction

Both types of possession may be expressed by means of genitives, which are reduced forms of possessive clauses, with the distinction between alienable and inalienable possession merged in the surface forms. For an example indicating alienable possession we may note the line preceding 3024, when Jesus recognized the faith of the woman: 3022b–3023a *Tho gihorde that fridubarn godes uuillean thes uuibes* 'then that child of God perceived the belief of the woman'. Other genitives of both types are abundant in the texts.

7.12 Transformational rule 12: prenominal modifier placement

Nominal modifiers of both kinds, adjectival and genitival, are placed before their nouns, as in the following example, Heliand 103b–106a *That uuerod othar bed umbi thana alah utan, Ebreo liudi, huuan er the frodo man gifrumid habdi uualdandes uuilleon* 'The other people waited around that temple outside, Hebrew people, until the wise man had performed the Ruler's will'. The adjective *frodo* precedes the noun it modifies, as do the genitives *Ebreo* and *uualdandes*. But the order may be disrupted for marking of various kinds, such as metrical prominence. For example, genitives regularly precede adjectives, as in Heliand 5237a *dodes uuirdig* 'worthy of death'. But in Heliand 2879 *that he uuari uuirdig uuelono gehuilikes* 'that he was worthy of every kind of wealth'; here to meet the metrical requirements of the two half-lines, the gen. is postposed.

7.13 Transformational rule 13: noun phrase agreement

When clauses are reduced, preposed adjectival modifiers have inflections to agree with their former antecedents in case, number and gender.

7.14 Transformational rule 14: question formation

In questions, whether formed with interrogative pronouns, interrogative particles, or by means of intonation, the interrogative or the item questioned tends to move to the front of the sentence. Accordingly, verbs are found initially in simple questions, as in Heliand 5105b–5106a *Is he dodes nu uuirdig be sulicun uuordun?* 'Is he now worthy of death for such words'? Such yes-no questions may be derived from questions introduced by *huueðer*. This derivation is based on the assumption that yes-no questions are reduced forms of correlatives; in the first question, *huueðer* is the introductory particle, in the second, a different particle, as in the only attested occurrence in the Heliand, 5207b–5208 *'Hueder thu that fan thi selbumu sprikis' quad he, 'the it thi odre her erlos sagdun'*, 'Whether you say that of yourself', said he, 'or other men here told it to you' = 'Do you yourself say that, or did other men here tell it to you'? Compare also the Go. version of Matthew 9.5 *hvaþar ist raihtis azetizo qiþan: afletanda þus frawaurhteis, þau qiþan: urreis jah gagg?* 'Is it really easier to say: your sins are forgiven you, or to say: rise up and walk'?

This use of two correlative particles apparently provided the full pattern of yes-no questions. The alternative however did not need to be indicated, as in the sole example in the Heliand, 554b–555a *Huueðer lediad gi uundan gold te gebu huilicun gumuno?* 'Are you bringing wound gold as a gift to some man?' Subject-verb inversion was frequently carried out in such questions, as in questions without a particle.

Corresponding to the use of *huueðer* are two particles in Go., in which differing particles are used to indicate the type of answer, as Streitberg (1920:219) illustrated by quoting Luke 6.39 *ibai mag blinds blindana tiuhan? ni-u bai in dal gadriusand?* 'Is it possible for a blind man to lead the blind?' (NO) 'Is it not true that both will fall down?' (YES) A corresponding pattern of presupposition is used in Beowulf 1319b–1320, when the poet knows that the answer is NO: *frægn gif him wǣre æfter nēodlaðu niht getǣse* 'he asked if the night had been pleasant for him in according with his wish'.

As these examples indicate, Go. *ibai* 'if' and its cognates in the other dialects could be used to introduce questions. The use of *ibai* in correlative structures leads to conditional clauses. A 'question' introduced by OS *ef* might be accompanied by an alternative question, yielding a correlative construction somewhat like that in Heliand 5207 cited above, for example, Heliand 919b–920a *Ef thu nu ni bist that barn godes, bist thu than thoh Helias* 'If now you are not that child of God, are you then in any case Elias?' When such correlatives were put in the first or third

person, conditional sentences resulted. An ancient pattern in the third person is found in Heliand 224b *he niate of he moti* 'let him use it if he can'. For an example of a first person, we may cite Heliand 219b–220 *That ic an minumu hugi ni gidar uuendean mid uuihti, of ic is giuualdan mot* 'That I may not change in my mind at all, if I can control it'.

Conditional sentences came to vary greatly in verb forms, with indicatives as well as subjunctives, and in other characteristics. Contrasts in word order are apparent in Go. as well as in the dialects attested later. The verbs of independent clauses were moved towards the front, while they tended to remain final in subordinate clauses (Delbrück 1910:359). The history of conditional clauses, and of subordination in general, needs considerable study.

7.15 Transformational rule 15: adverb preposing

Adverbs and adverbial phrases are introduced as Means, Source, Time or Place Nominals. They may be moved to first position in sentences other than questions. The subject is then placed after the verb if this occupies the second position.

7.16 Transformational rule 16: negative incorporation

In negative sentences, indefinites must belong to the *enig* rather than the *sum* class; the *enig* class includes also *en, endihweðer, eoman, eowiht.* The negative particle introduced through the modality feature must be placed before such indefinites. The copying rules remain to be determined, as Heliand 1507–1508 may illustrate: *Than uuilleo ic iu eft seggean that san ni suerea neoman enigan edstaf eldibarno* 'Then I want to tell you too that no one of the children of men should swear any oath'. Yet we may conclude from this passage, and from the following quotation, that the negative is copied before the verb and, optionally, indefinites; Heliand 1577b–1578a *huuand imu nis biholan neouuiht ne uuordo ne uuerco* 'for nothing is concealed from him, neither of words nor of works'. In Heliand 3892 the negative is copied before the verb and the indefinite: *Ne ik thi geth ni deriu neouuiht* 'Nor do I blame you in anything'.

Preverbal, the negative remains attached to the verbal node through subsequent transformations. The antiquity of preverbal copying is assured from forms like OS *netuuan (ni uuet hwanan)* 'somewhere (I do not know whence)' and OE *nathwær,* as well as the contracted forms of the copula in various dialects, as in OS *nis.* For these frozen forms provide excellent evidence of the PGmc. pattern.

After negative sentences, many conjunctions are replaced by *ne*, as in Heliand 243 *Tho ni uuas lang aftar thiu, ne it al so gilestid uuard* 'Then it wasn't long after that until it was carried out just so'. This construction has led to the predominant pattern in negative conditionals, as in Heliand 121b–122a *ne si that he me an is arundi huarod sendean uuillea* 'unless it be that he wants to send me somewhere on his errand'.

7.17 Transformational rule 17: subject verb inversion

After the sentence initial elements introduced by transformational rules 14–16, subjects are inverted after verbs. Examples may be found above.

7.18 Transformational rule 18: reordering

As indicated above, late rules may produce reordering. These rules have to do with affective patterns, whether to introduce emphasis in prose texts or bring about rearrangements for poetic purposes. By such rules any of the entities generated by the PS-rules may be rearranged; the examples cited above give adequate evidence.

Among the phenomena resulting from such rules are those of economy (Ersparung). Economy has long been studied, and often identified as a conjoining device. As in Heliand 1352b–1353a, the economy in Gmc. texts is usually evident in the second conjoined sentence. This example illustrates that the conjoining may be implicit: *thie her er an uunnion sind, libbiad an luston* 'who here formerly have been in happiness, (who here) have been living in pleasure'. An example of explicit conjoining is found in Heliand 2885b–2887: *huand he thit uueroldriki, erde endi uphimil thurh is enes craft selbo giuuarhte endi sidor giheld* 'because he this world, earth and heaven through his might alone himself created and since has maintained'.

Under the name of gapping, which was proposed by Ross, economy has been related to language types. In VO languages like the contemporary Gmc. dialects, the economy is introduced into the last clause: 'because he created this world, earth and heaven'. In OV languages like Japanese, it is introduced into the first. Using the location of economy as a guide, we would consider the Gmc. documents from the eighth century onward as indicating a basic VO order. Yet in the Heliand passage just cited, the verb is final in its clause, and one could interpret the gapping as in the first sentence, which would be derived from *huand he thit uueroldriki giuuarhte*. As in other constructions, this passage then reflects the earlier PGmc. OV order.

8. Conclusion

Probably more than the other essays of this book, mine indicates the extent of the work that must now be done to provide an adequate treatment of PGmc. grammar. Opportunities for further studies in PGmc. syntax are highly promising. As I have mentioned above, extensive collections have been made by nineteenth century scholars; these can be used as a basis for many necessary syntactic studies. Without wishing to appear ungracious to the scholars who made these collections, I might point out differences in our interests by noting that one of the best of these studies, Behaghel's of 1897, lists patterns by the numbers of items involved. Dealing with phrases (Wortgruppen), Behaghel treats them in accordance with the number of entities they contain, whether 2, 3, 4, 5, 6, or 7 (109–224); sentence groups are handled similarly (303–368). Rather than list the number of entities in constructions, we would like a grammar so designed that it presents the data of language in accordance with the structural principles of any given language, in a framework that is capable of embracing any language whatsoever.

Whether the framework used here will be followed by others who carry out the studies I have recommended is not my primary concern. This framework has the advantages of Panini's grammar, and the improvement that it does not need to deal separately with the upapadavibhakti–case forms introduced because of a word other than a verb–and the kārakavibhakti–case forms introduced because of the relations with verbs (Ananthanarayana 1970:18). One source of the upapadavibhakti are adjectives; they here are treated in the same grammatical class as verbs. By my framework the syntactic patterns in the early Gmc. materials can be handled comprehensively, as a sketch of a section of one of our oldest and presumably most genuinely Gmc. materials may indicate, the Anglo-Saxon Chronicle. This section is the entry in the Parker manuscript for 418 A. D., written as much as five centuries later. To achieve the required brevity, the PS-rules and T-rules are merely indicated, with more extensive markers omitted.

Her	*Romane*	*gesomnodon*	*al þa gold hord*	*þe*	*on Bretene*	*wæron,*	⁊
Time	Agent	V	Target	Agent	Place	V	
						T-rule 8	

sume	*on eorþan*	*ahyddon*	*þæt*	*hie*	*nænig mon*	*siþþan*
Target	Place	V	Receptor	Target	Agent	Time
		T-rule 1	with result meaning			

findan	*ne meahte,*]	*sume*	*mid him*	*on Gallia*	*læddon:*
	V	Target	Means	Place	V
T-rule 2	T-rule 7		(Comitative)		T-rule 1

In this year the Romans collected all the gold-hords that were in Britain, and some they hid in the earth so that no man has been able to find them since, and some they carried with them to Gaul.

This brief analysis may illustrate some of the tasks to carry out in determining the syntactic patterns of PGmc. and the early dialects. On the basis of detailed syntactic analyses of the available materials, (1) the transformational rules must be worked out so that they yield the patterns attested, (2) additional (low-level) transformational rules must be determined and (3) lexical classes must be specified in detail. When many such studies are completed, we will be able to speak with greater assurance of historical syntactic change. For example, just what processes were involved in subordinate clauses in PGmc. and the early dialects? Is there indeed adequate evidence to assert that verbs occupied a later position in subordinate clauses than in independent clauses (Delbrück 1910:359) and that pronouns were used more frequently in subordinate clauses (Schulze 1933:587–89)?

Minute syntactic analysis will also illuminate in greater detail the structures of individual dialects (West Saxon as opposed to Anglian, OS, etc.), of the style of individual writers (possibly even various translators, such as those of the OHG Tatian), and disclose characteristics of individual genres (charms, epic, etc.). Moreover, we may be able to use syntactic criteria other than the few features suggested by Schulze (1933:376, 543–4) and others to determine the history and interrelationships of the Gmc. dialects. These interrelationships have been determined primarily on phonological and morphological characteristics, which for some time have made up the greater part of texts and courses dealing with languages of the past. If syntax resumes a central position in the historical study of languages, current treatments of phonology and morphology will also need attention.*

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1. Titles of journals are abbreviated as in the 1968 *Bibliographie linguistique . . . Linguistic Bibliography* (UNESCO).

2. A superscript before the date of a work indicates the edition, e.g., ^{7}1969 = 7th edition, appeared in 1969. Some of the authors mention this superscript when referring to such works in the body of their texts, others do not. No ambiguity need arise if it is kept in mind that, e.g., Braune-Mitzka ^{7}1965 and Braune-Mitzka 1965 refer to the same edition of the same work.

3. Different editions of the same work used by different authors are all listed in the bibliography.

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Indices*

Index of forms

This index of forms is quite complex, since so many different languages are cited by so many different authors, who do not always use the same spellings and the same grammatical terminology. It is therefore of the utmost importance that the reader familiarize himself with the following paragraphs, which will enable him to use the index effectively.

Coverage

This index aims at completeness, with one exception. Complete sentences and long phrases, which occur frequently, mostly in Lehmann's essay, are not analyzed. But if they contain a nuclear word around which the whole construction revolves, that word appears in the index.

Designation of languages

Only language designations are given, not designations of dialects; e.g., Anglian and West Saxon are both called OE. Otherwise the author's designations are used everywhere. If two authors have different terminologies, both are given; e.g. *hverr* ON = OI. (Of course this does not mean that ON and OI are the same language; it merely means that in this book both terms are used to refer to this particular entry.) An entry such as '*Ariovistus* Lat. (Gmc.)' indicates a Lat. text with (presumably) Gmc. elements.

Grammatical terminology

Bound morphemes such as endings, suffixes, clitics, etc., are given a designation of their nature; the term used is that of the author(s).

An entry such as"**xelp-* PGmc. (ablaut) 199" means that the different ablaut stages of this stem are given on that page. Similarly, an entry such as "*patḗr* Gk. (inflexion) 10" means that a full inflexional paradigm is found there.

Regularization of spellings

In general, regularization has been kept to a minimum and the authors' wishes have been respected to the greatest possible extent. For instance,

* The numbers refer to pages. Numbers in italics indicate that the item occurs more than once on that page.

some authors use certain diacritic marks, others do not, but the index does not attempt to eliminate the inconsistencies (e.g. Go. *-dedai* vs. *-dēdeina*; the presence or absence of an asterisk before or after a reconstructed form). Even when different diacritic marks are used to indicate the same phenomenon, the difference has been kept (e.g., length, if it is indicated at all, may be marked by a macron¯ or by a circumflex ˆ).

However, when one and the same form is cited both with and without diacritic marks, or with different diacritic marks, only one spelling is given.

The following regularizations have been adopted:

ON has been regularized consistently, following Gordon ²1957, but macrons¯ are used instead of accents ′ to indicate length, and the 1 pl. ending *-m* is kept. Note that this may change the form quite substantially; e.g. *skolo* is found under *skulum*.

The PIE semivowels are spelled *y* and *w*, but the semivowels forming the second part of PGmc. diphthongs are spelled *i* and *u*. (For a justification of this, see van Coetsem 1972, § 3.1.2,2.) Otherwise PGmc. semivowels are spelled *j* and *w*.

The Gmc. voiceless obstruent corresponding to PIE *k* has been regularized as *x*; e.g. */þūhtuz/* is found under */þūxtuz/*.

OHG and OS *c* for *k* has been changed to *k*; also *uu* for *w* has been changed to *w*.

đ has been changed to *ð*, but OE *ð* and *þ* are both transcribed as *þ*.

Alphabetical order

æ = *ae*; *œ* and *ø* = *oe*; the laryngeals, transcribed as *H* followed by a subscript, = *h*. *hw* follows *h*; *þ* follows *t*. Other derived letters are classified with the original symbol, e.g., *ŋ* = *n*, *ɔ* = *o*, *ð* = *d*, etc. Superscripts count as full letters; thus d^h = *dh*, etc.

Forms are alphabetized as they occur, with one exception: the prefix *ge-*, *gi-* is discounted when it precedes the past participle. Thus *gibotan* is found under B, but *gaskafts* under G.

If several languages have the same form, the classification in the index is according to the alphabetical order of the language designations; e.g.

bugi Go.
bugi OHG
bugi OS

Guy A. J. Tops

A
-a Go. (ending) 14
**-ā* IE (ending) 34
a NE 108
aasai Osc. 45
aƀa lPGmc. 249
Abbo OS 159
abdūcere Lat. 63
aƀur lPGmc. 249
ac OE 256
achta OFri. 169
að OE (ending) 90
-ad, *-að* OS (ending) 90
ad- Skt. 187
aðalordƒrumo OS 216
addeins Go. 146
addūcere Lat. 63
æft OE 169
æht OE 224
ælbitu OE 59
ælf-siden OE 65
ænne OE 106
aenus Lat. 63
æren OE 63
aes Lat. 63
æspe OE 169
ætta OI 125
æþele OE 120
af Go. 100, 216
af lPGmc. 249
(àf)aí+àik Go. 112
áflēt Go. 100
aftan OHG 169
aftan OS 169
aftana Go. 169
aftar OS 91
after lPGmc. *249*
afteri lPGmc. 249
aftiuhan Go. 63
áftra+ànastòdeins Go. 112, *113*
àf-wálwiþs Go. 108
-ag Go. (suff.) 14
**-aga-* Gmc. (suff.) 215
**-aga-* WGmc., Go. (suff.) 215
āga OFri. 91
[aggj-, aggju-] WGmc. 153, 155, 156, 158
[agj-, agjō] PGmc. 153, 155, 156, 158
agls Go. 251
aglu- PGmc. 251
aglus Go. *251*
**agslā* pre-Lat. 63
ahesnes Umbr. 63
ahs Go. 145
ahsala OHG 63
ahtau Go. 165, 169
ahte OE 125
ahto OHG 169
ahto OS 169
áhtôta OHG 34
áhtoti OHG 34
áhtotôn OHG 34
aí+àik Go. 112, 113, 207
-aí+àuk Go. 112, *113*, 114, 206
aiaukum Go. 206
aiffaþa Go. 146
áih Go. 224
aih Ru. 149
aihta Go. 125
aihtedes Go 125
áihts Go. 224
aiwa- Go. 147
**āik-* PGmc. 207
aikan Go. *207*
**ain-* Gmc. 63
áinana Gmc. 106
ainlif Go. 57, 58fn.
aire OIr. 67
airus Go. 125
aiþs Go. 66
aíþ+þàu Go. *113*, 114, 145, 146
aiw Go. 114, 146
aiz Go. 63
ak Go. 256
**ak* PGmc. 256
akno Osco-Umbrian 62
akranaláus Go. 219
āla Lat. 63
ala Ru. 149
alawid Ru. 148, 149
**albh-* PIE 59
albiz OHG 59
albus Lat. 59
ald WGmc. 75
aldinn OI 75
alew Go. 68, 69
**alēwa-* Raet. 69
alfu Umbr. 59
alhvītr OI 222
all OI *222*
allis Go. 114
alþeis Go. 75
alu Ru. 149
amann Bret. 60
amant Lat. 186
ambaht OHG 67
amsala OHG 168
amsans Go. 168
-an- Gmc. (suff.) 220
ana lPGmc. 248, *249*
àna-aí-àuk Go. 103
anabaud Go. 145
anabauþ Go. 145
anabiuda Go. 145
ancho OHG 60
ànd- Go. (proclitic) 109
and OE 255
-and OS (ending) 90
ánda- Go. 108
anda-sēt Go. 132

ánda-waùrdi Go. 109
anden 'the duck' Swed. 34
anden 'the ghost' Swed. 34
ànd-bíndan Go. 108
**anði* PGmc. *255*, 256
ànd-waúrdjan Go. 109
Anke MnGer. (dial.) 60
ānne OE 106
annus Lat. 62
anst-ai Go. 135
*/anstiz/ PGmc. 140
ansts Go. 140
-anþ PGmc. (ending) *90*
anþarleikei Go. 219
**ápo* IE 100
**apó* IE 100
Appletreewick NE 111
-aptan OI 169
ār OI 151
-aR Ru. (ending) 29
āra Lat. 45
arbja Go. 66
arbi Go. *66*
arbinumja Go. 220, 235, *236*
arca Lat. 133
archa OHG 133
arcus Lat. 62
arfnyti OI 214
arhvazna Go. 62
arina ON 45
aRina Ru. 45
Ariovistus Lat. (Gmc.) 15
-ārius Lat. (suff.) 214
-ărja- Gmc. (suff.) *214*, 215, 224
arka Go. 133
arm OHG 168
arm OS 168
armbaugr OI 220
armr OI 168
arms Go. 168
ārr OI 125
ars OHG 168
ars OI 168
ars OS 168
ārvakr OI 220
**aryo-* IE 67
**-ās* IE (ending) 34
as-au NWGmc. 135
ásilu-qaìrnus Go. 103
ásilus Go. 106
asmā́d Skt. 166
asmā́i Skt. 166
aspa OFri. 169
aspa OS 169
āss OI 168
-assus Go. (suff.) 105
astēr Gk. 166
at- Go. (proclitic) 107
-at OS (ending) 90
àt-gággands Go. 108
atgagggand Go. 171
at-giban Go. 107, *108*
-ath OFri. (ending) 90
a-thengian OS 127
**atnos* Italic 62
atta Go. 194
ātta OI 125, 152, 169
atti Skt. 187
attiuhan Go. 63
at-uh-þan-gaf Go. 108, *109 fn.*
aþn Go. 62
-aþ Ingveonic 90
áuga-daùrō Go. 103, *104*, 105, *111*, 113, 220, 221
**áuga-ðùr-* PGmc. *111*
*[augonom] PIE 137
**āuk-* PGmc. 199
aukan Go. 207
*/aukanan/ ePGmc. 137
aurddrach OIr. 65
[axtau] PGmc. 152
**áxtōw* PGmc. 102
**ayes-no-* Italic 63
**-az* PGmc. (ending) *29*

B

Bacenis Lat. (Gmc.) 15, 134
bad OE 130
bād OFri. 157
bad OHG 163
bað OI 151
bað OS 159
*/bædme/ ePGmc. 137
*/bæd-um/ lPGmc. 137
bær OE 154
bærfōt OE 220, 221
bæron OE 124
bæþ OE 154
*/baid-/ PGmc. 130
bairan Go. 146, 164, 225
-bairga Go. 122
bairgan Go. 58
baiþ Go. 119, 130
balà Lith. 164
balwawesei Go. 58
-balg Go. 168
balg OFri. 168
balg OHG 168
balg OS 168
balgs Go. 228
balo OHG 58
band OI 225
*/bande/ ePGmc. 137
-bar Go. 146
-bar MnGer. (suff.) 233
bar OHG 163
bar OI 151
bar OS 159
bāra OI 225
bare-foot MnE 220
barfuß MnGer. 220
bAriutiþ Ru. 19, 149, 150
barizeins Go. 47
barn Go. 75
barn OI 225
barna OFri. 90
baro OHG 58
barr ON 47
barum OHG 124
bārum OI 124
barun OS 124
bArutR Ru. 19
barvōt MLG 221
barvuoʒ MHG 221
bauð OI 129, 151, 153
*/baud-/, [bauð] PGmc. 128, 153
baug Go. 129
*/baug-/ PGmc. 128
*/bauge/ ePGmc. 137
baúr Go. 225
baurg Go. 168
baurgs Go. 146

baúrg-s-waddjus Go. 217 218, 228
bauþ Go. 88, 119, 146, 206
/bferda/ OHG 91
bēad OE 153, 154
beag OE 129
bealu OE 58
bearo OE 58
bed OS 130
beðinn OI *130*
bedum Go. 137
befela OFri. 168
beið OI 130
beida Go. 130
beidan Go. 130, *190*
*/beidan-/ PGmc. 131
beidis Go. 130
*/beidis-/ PGmc. 131
*/beidū/ PGmc. 131
beiskr ON 190
beisl ON 190
**þeis+n-* PGmc. *190*
-beisns Go. *190*
beist Go. 190
beit OHG 130
beita Go. 124
beita OI 225
beitan Go. 124, 190
beitiþ Go. 124
bek OFri. 157
belgr OI 168
bénc OE 104
**þenð-* PGmc. 34, 178
bēodan OE 88, 126, 153, 154
[beoðanan] PGmc. 153
beode OE 126
beogan OE 129
beogo OE 129
beorgan OE 58
beorgu OE 122
beornan OE 90
beotamēs OHG 197
ber OFri. 157
ber OS 123
bera OFri. 157
bera OI 151, 225
beran OE 154, 164
beran OHG 163
beran OS 159
bere OHG 139
*/berede/ (e)PGmc. 138, 139
beregú Russ. 58
beret OHG *123*, 138, 139
berfœttr OI 220
berfōt OFri. 220
berg OHG 18
bergan OHG 58
-beri OI 225
berna OFri. 90
berry E 227
berum Go. 124
bet OFri. 157
beth OFri. 157
**þeuð-* Gmc. 34, 199 (ablaut)
*/beudan-/ PGmc. 130
*/beudis-/ PGmc. 130
*/beudū/ PGmc. 130
*/beugan-/ PGmc. 130
*/beugesi/ ePGmc. 137
*/beugis-/ PGmc. 130
*/beugū/ PGmc. 130
bhárati Skt. 164
*[bʰēdʰ-m̥me] PIE *137*
**bhel-* PIE 52
*/bʰerete/ PIE 123, 138, 139
*/bʰeroyt/ PIE 139
*[bʰewgʰesi] PIE 137
*[bʰidn̥t] PIE 137
**bhl-eH₁-y-* PIE 52
**bhl-ey-* PIE 52
**bhl-ey-ǵ-* PIE *52*
**bhl-ey-k-* PIE 52
*[bʰondʰe] PIE 137
*[bʰowgʰe] PIE 137
**bhrā́tēr* IE 101
/bhrā́tōr/ PIE 165
*[bʰugʰme] PIE 137
*[bʰugʰn̥t] PIE 137
ði lPGmc. 249
ðî lPGmc. 249
biada OFri. 157
bi-æftan OE 91
bi-árbàidjan Go. 108
bi+áukan Go. 112, 113
bīð OI 130
bīða OI 130
bidan OE 130
bidan OS 130
gibidan OS 130
*/bidan-/ PGmc. 130
bidans Go. 130
bidda OFri. 88, 169
biddan OE 88, 169
biddian OS 88, 169
bide OE 130
biden OE 130
bidi Go. 130
biði OI 130
bidi OS 130
*/bidī-/ PGmc. 130
bidis OS 130
bidja, biðja ON = OI 88, 169
bidjan Go. 88, 169
bido OE 130
bīðr OI 130
bidu OS 130
bidum Go. 119, 130
biðum OI 130
*/bidum-/ PGmc. 130
bidun OS 130
biehst OE 129
bielg OE 168
bietst OE 126
bifelhan OHG 168
bifelhan OS 168
bilaigon Go. 194
bildschön MnGer. *233*
(bi)leiban Go. 57fn.
binda OI 225
bindað OE 90
bindað OS 90
bindan Go. 178, 199
bind-e-t OHG 135
bintant OHG 90
bindath OFri. 90
bindi OI *225*
bīnī Lat. 63
/bi-nūan-/ PGmc. 167
binten OHG 90
bintet OHG 90
biodan OS 126, 159
biodun OE 130
biogan OHG 129
biogan OS 129
biotan OHG 88, 126, 129, 163
biotun OE 122, 123

bir OHG 123
birg Ru. 149
birgu OHG 122
birgu OS 122
bist OS 87
bist OE 87
bit OI 225
bīt OI 124
bīta ON = OI 124, 190, 225
bitan OE 124
bitan OHG 130
gibitan OHG 130
bitan OS 124
bite OE 122, 124
bitelban OHG 53
biti Go. 122
biti OI 122
biti OHG 130
biti OS 122
bitid OS 124
bitis OHG 130
bītr OI 124, 225
bitst OE 130
bitt OE 124
bittan OHG 88
bitten OHG 169
bitu OI 122
bitu OHG 130
bitu OS 124
bitum OHG 130
-bitun Go. 122
*/bitun/ lPGmc. 137
bitun OS 122
(Bitu)rīges Gaul. 68
biuda Go. 126
biudan Go. 88, 126, 190, 191
biudis OS *126*
-biudiþ Go. 146
biudu OS 126
biuga Go. 129
biugan Go. 129
biugis Go. 129
biugis OHG 129
biugis OS 129
biugu OHG 129
biugu OS 129
bi+ūhti Go. 112, *113*
biutis OHG 126, 129, 197
biutit OHG 197
biutu OHG 126, 129
biuþ OSwed 126
biuþa OSw. 129
bizan OHG 124
bizit OHG 124
bizu OHG 124
bizzi OHG 122
bizzun OHG 122
bjarga ON = OI 58, 123
bjōð OI 126
bjōða ON = OI 88, 126, *129*, 151, 153
bjǫrgu(mk) OI 122, 135
bjūga OI 129
blad OS 159
blæd OE 154
blǣġe OE 52
bláhvítr MnI 219
blāhvītr OI 219, 220, 221
blaiskums Lett. 52
blat OHG 163
bled OFri. 157
blěknutʼ Russ. 52
blīcan OE 52
blīð-skapr ON 87
bliggwan Go. 202
blīhhan OHG 52
blīkja ON 52
blinds Go. 167
blīo OHG 52
**blīšk-* Baltic 52
bliskati OCS 52
bliuwan OHG 202
**blīwa-* Gmc. 52
blizgeti Lith. 52
**blō* + *str* PGmc. *190*
-blostreis Go. *190*, 191
**blōt-* PGmc. 190
blōta ON 62
blōtan Go. 62, *190*, 191
blōtgoði ON 62
blōzan OHG 190
blueberry E 227
bluostar OHG 190
bluozan OHG 62
blȳ ON 52
blȳkšti Lith. 51
blývas Lith. 52
bnauandans Go. 167
/bnūan/ PGmc. 167
bō OI 129
bobba OFri. 157
bōd OS 159
bǫðfrœkni OI 235
boðinn OI 129
bögg(e) Ger. 65
bog OS 129
gibogan OHG 129
gibogan OS 129
bogen OE 129
boginn OI 129
bōkareis Go. 214
bǫl ON 58
bolěti OCS 58
bolŭ OCS 58
boohhum OHG 17
bor Russ. 58
borg OI 151, 168
borgarstaðr 218
bórošno Russ. 47
bǫrr ON 58
borgstaðr OI 218
borŭ ORuss. 58
bōt OHG 129, 163
gibotan OHG 129, 195
botin OHG 196
boto OHG 196
boug OHG 129
boutūron Gk. 60
bræc OE 154, 226
brah OHG 163
brahman Skt. 62
brahta Go. 186
brāhta OHG 186
brak Go. 146
brak OS 159
brān OIr. 53
brašĭno OCS 47
brȃšno Serbian 47
brecan OE 154, 226
brechan OHG 163, 194
brěgǫ OCS 58
brek OFri. 157
breka OFri. 157
brekan OS 159
**brekǎn-* PGmc. 202
brenna ON 193
brěšti OCS 58
breze OFri. 157, *158*
briggan Go. 167, 171, 186

-brikan Go. 146, 199, 202
bring MnE 171
bringan OE 171, 186
bringan OHG 186
bringiþ Go. 171
brinna ON 193
brinnan OHG 90
bríza Thracian 53
brocchō OHG 194
brocchōn OHG 194
broðar OS 125
brōðir OI 125
brōhte OE 186
broþar Go. 125
**brṓþēr* PGmc. 101
brōþor OE 125, 165
[brṓþor] PGmc. 165
[bruki-] PGmc. 155, *158*
-bruknan Go. 199
bruni ON 193
bruoder OHG 125
brūt OHG 218
brūtigomo OHG 218
brutis Lat. (Gmc.) 6
bryće OE 154, 155, *158*
brȳd OE 218
bryder Dan. 19
bryter Swed. 19
*/budan-/ PGmc. 128
*/budī-/ PGmc. 128
budum Go. 119, 206
buðum OI 129
*/budum-/ PGmc. 128
*/bugan-/ PGmc. 128
bugans Go. 129
buge OE 128, 129
bugge ME 65
bugi Go. 129
bugi OHG 129
bugi OS 129
*/bugī-/ PGmc. 128
*/bugme/ ePGmc. 137
bugon OE 129
bugum Go. 129
bugum OHG 129
bugum OI 129
*/bugum-/ PGmc. 128
*/bugun/ lPGmc. 137
bugun OS 129
gibundan OS 121
bundans Go. 121
bund-ei-s Go. 135
bunden OE 121
bundin OI 225
bundinn OI 121
bund-i-s OS 135
-bundnan Go. 199
gibuntan OHG 121
bunt-i-s OHG 135
Buochunna, Buohhunna OHG 15, 134
buohhum OHG 17
burg OE 154, 168
burg OFri. 157, 168
burg OHG 163, 168
burg OS 159
burr OI 225
-busns 190, 191
buti OHG 129
butter E 60
butum OHG 129, 195
butyrum Lat. 60
būvis Lith. 56
**buwi-* PGmc. 56
bužỹs Lith. 65
bwg Welsh 65
bȳð OI 129
byði OI 129
bȳðr OI 126, 129
bȳg OI 129
bygi OI 129
bȳgr OI 129
bynd-i-r OI 135
byr ON 56

C

cacht OIr. 60
cadeis Osc. 62
caeth Welsh 60
captīvus Lat. 60
captus Lat. 60, 165
Case-board E 232
catte OE 166
cattus Lat. 133
Caturiges Lat. (Celtic) 67
causam (dīcere) Lat. 60
centum Lat. 164
chicken MnE 18
c(h)orn OHG 163
chreachi OHG 173
chrēchi OHG 173
cild OE 18, 75
cinn OE 154, 155, 158
claudere Lat. 191
claustrum Lat. 191
clethrar MIr. 60
cnēo OE 154, 155
co- Lat. (proclitic) 109, 186
co- OIr. (proclitic) 109
co Osc. 109
coctus Lat. 192
coddes OE 154
cohhettan OE 154, 160
collus Lat. 62
com- Lat. (proclitic) 109
com- OIr. (proclitic) 109
com Osc. 109
com-arbe OIr. 110
coman OHG 89
com-mánis Lat. 60, 110
con- Lat. (proclitic) 109
condūcere Lat. 63
con-venire Lat. 110
const OE 87
coquere Lat. 192
corn OE 154
corn OHG 163
corn OS 159
cran-, cranberry E *227*
crabba OE 154
Crēcas OE 124, 173
crēc(land) OFri. 173
criathar OIr. 60
crībrum Lat. 60
croppa OE 166
cu- OIr. (proclitic) 109
(-)cum Lat. (clitic) 109
cum- OIr. (proclitic) 109
cuma OFri. 89
cuman OE 89
cutto OHG 163
cwæþ OE 153, 154
cweþan OE 153, 154
cwēn OE 164
cweorn OE 53
cwic OE 196
cwoen OE 124
cynn OE 164

D
*/dǣdaji/ ePGmc. (ending) 139
dæg OE 88, 111, 121, 154
dæges OE *106*
dælan OE 125
dag Go. 145
dāg OE 155
dag OLFra. 111
dag OS 88, 111, 121, 159
daga Go. 91, *114*, 139, 145
*/dagai/ ePGmc. 139
dagans Go. 32
dagar OI 121
dagaR Ru. *149*
dagas OE 121
Dagawald- Gmc. 219
**ðagaz* PGmc. 111
dagos Go. 121
dagos OS 121
dagr OI = ON 88, 111, 121, 151
dags Go. 36, 75, 88, 111, 121, 145, 146
Dagvaldus Lat. (Gmc.) 219
dāh OE 155
dāhta OHG 125, 186
dahti OHG 125
daig Go. 146
dailjan Go. 125
dálba Lith. 53
dan OHG 163
dankwis Hitt. 45
darba OHG 168
darf OHG 168
dařva Lith. 56
daug Go. 258
dauhtr Go. 121
dáupeinài Go. 106fn.
dáupeinàis Go. 106fn.
dáupeins Go. *106fn.*
daupjan Go. 91, 106fn.
daúr Go. 104
day's NE 106
daz OHG 18, *161*
dead OE 184
deað OE 184
deah OE 128
dear(r) OE 164
decem Lat. 164
-dedai Go. (ending) 139
-dēdeina Go. (ending) 105
dēh OHG 183
dei OFri. 111, 157
deíknūmi Gk. 60
deila OI 125
délba Lith. 53
delfan OE 53
delian OS 125
dēma OE 214
denken OHG 186
dennen OHG 169
dēor OE 86, 154
deota OHG 197
dervà Lith. 56
**der-w-* PIE 56
dese OHG 87
/dewk-/, /dewkonom/ PIE 165, 166
**deyk-* PIE 61
-dh- IE (determinative) *53*
dhárṣati Skt. 164
dhazs OHG 161
**dhel-bh-* PIE 53
**dheng*^{w}- IE 45
*[d^{h}ē-toy-i] PIE (ending) 139
*[d^{h}og^{h}-o-y] PIE 139
*-ði-/-þi- Gmc. (suff.) 188, 224
dī OFri. 111
diār OFri. 86, 157
dīcere Lat. *60*
diem (dīcere) Lat. 60
dier OS 86
gidigan OHG 183
digi OHG 122
digum OHG 183
digitus Lat. 63
dih OHG 90
dīhan OHG 127, 183
dingua OLat. 62
**diŋkwa-* Gmc. 45
dior OS 159
diota OHG 61
diśáti Skt. 60
dir OHG 90
ðirda OE 18
dius Go. 86
diutisk OHG 197
diuzis Go. 86
*[dŋg-ōn-i] pre-Gmc. 139
dochter OE 121
dōd OS 184
døkkr ON 45
dœmða ON 22
dogga OE 154, 166
dohter OHG *161*
dolbit' Russ. 53
dōm OE 87
dominus Lat. 61
-dōm WGmc., NGmc. (suff.) 87
dōmr OI = ON 87, 222
-dōmr OI (suff.) 222
dōms Go. 87
domus Lat. 61
dōn PGmc. 83
dorn OHG 163
dōth OS 184
/dówk-/ PIE 166
doûlos Gk. 54
draga OI 151
dragan OE 154
dragan OS 159, 160
draoga Av. 65
draugr ON 65
dréam-lèas OE 104
drega OFri. 157
drekka OI 168
drempel OFri. 168
dreskan OHG 202
ðridda OE 18
driggka Go. 171
drigkan Go. 167, 168, 171
drincan OE 168, 171, 226
drink MnE 171
drinka OFri. 168
drinkan OS 168
drō OI 151, 152
drōch OFri. 157
[drōg] PGmc. 152
drōg OE 154
drōg, -h OS 159, 160
drogha- Skt. 65
[drōh] pre-OI 152

drōh OE 154
drōh OS 159, 160
drohting OS 121
druhting OS 121
drunc OE 226
druoc OHG *161*
duge OE 128
dugon OE 128
duhta OHG 125, 127
/duk-/ PIE 166
/dukónos/ PIE 165
dunkit OHG 127
dunni OHG 193
durfan OHG 186
durft OHG 186
dus- Gk. 102
**dus-* IE 102
ðūsend OE 51
dūsunt OHG 51
-dūþs Go. (suff.) 105
dvýlika Lith. 57
dwalai Go. 167
dwerh OHG 168
**dwisno-* IE 63
dyge OE 128
dýr OI = ON 86, 151
dzīge Lett. 55
dziřnavas Lett. 53
dziřnus Lett. 53

E
-e Indic (inf. marker) 257
e- OFri (proclitic) 109
ĕag-dùra OE 111
ēag-duru OE 220
eahta OE 165, 169
**eðik-* PGmc. 207
eal OE 103
ealu OE 120
éalu-bènc OE 104
earc OE 133
earh OE 62
earm OE 168
ears OE 168
**é+àuke* PGmc. 112, 114
**e-awge* IE 112
**éƀn-àss-* PGmc. 111
**éƀn-èss-* PGmc. 111
éƀn-ìssi OS 111
ecg OE *153*, 154, 155, 158
**eðaraz* Gmc. 58
edor OS 58
ef OS 264
efta OFri. 169
eg(e)le OE 251
egg OFri. 156, 158
egle OE 251
ēht OHG 125, 224
ehta OS 125
-ei Go. (particle) 262
Eid Ger. 66
-ein Gk. (inf. marker) 257
ein OI *222*
eina-g OHG 215
einan OHG 106
einlif OHG 57, 58fn.
einharðr OI 222
einharti OHG 222
-eins Go. (ending) 106fn.
eir ON 63
eiscōn OHG 179
ek Ru. 149
/ekwo-/ PIE 147
elbiz OHG 59
eleútheros Gk. *54*, *67*
elidheodīgūn OHG 197
elptr ON 59
en lPGmc. *249*
en ON 255
en OS 265
endihweðer OS 265
ēnhard OS 222
enig OS *265*
enk OHG 91
enōch OFri. 157
eodor OE 58
eoman OS 265
eorð OE 253
ēow OE 90
eowiht OS 265
equites Lat. 61
er- NHG (pref.) 108
er OHG 91, 94
ēr OHG 63
er ON *262*
Erbe (das) Ger. 66
Erbe (der) Ger. 66
Erce OE 60
erda OHG 196
érd-cùnni OHG 105
erdin OHG 196
-ere OE (suff.) 214
eréphō Gk. 59
-eri OS (suff.) 214
ērīn OHG 63
erkan Armenian 53
er-laub-t NHG 109
erm OFri. 168
erpi-nomo OHG 220
ers OFri. 168
erƀō PGmc. 252, 253
es OHG 91
es ON 262
esil OS, OHG 106
/esméd/ PIE 166
/esméi/ PIE 166
**esmi* IE 109
esol OE 106
essa OHG 45
est ON 87
-et OFri. (ending) 90
etar OHG 58
-eth OFri. (ending) 90
**eti* IE 112, 113
ettho OS 159
Etzel MHG 23
**éƀ+ƀàu* PGmc. 114
euer MnGer. 80
euch NHG 90
**eup-* PGmc. 180
ēwa OHG 19
**ey-* PIE 66
**ezmi* PGmc. *109*, 112
ëzzan OHG 5

F
fā OI 125, 127, 168
fadar Go. 88
fadar OS 88
**/fadēr/* ePGmc. 137
**fáðēr* PGmc. *102*
faðir ON 88
fæder OE 88, 100
fær OI 125
fæst OE 169
fæt OE 154
fæƀm OE 137

fnēosan OE 167
fāhan OHG 125, 127, 168, 183
fāhan OS 125, 127, 168
fahid OS 125
fahit OHG 125
fahiþ Go. 125
faif Ger. (dial.) 93
faihido Ru. *149*
faíhu-gaírns Go. 220, 221
faìr- Go. (proclitic) 109
fairhvus Go. 169
fairnin Go. 56
fairra Go. 146
fāith Ir. 59
-falh Go. 184
falla OFri. 157
falla OI 151
fallan OHG 163, 192
fallan OS 159
*/fallede/ PGmc. 139
falliđ OI 139
fān OFri. 168
fangan OHG, OS 127
gifangan OHG 127, 183
gi-fangan OS 127
fangen OE 127
fanginn OI 127
*/fanxanan/ ePGmc. 137
/fanxanan/ pre-Gmc. 170
far Lat. 47
far OI 225
fār OI 225
fār- PGmc. (ablaut) 199
faran OS 258
farande OFri. 89
farīna Lat. 47
farm OHG 58
farmr ON 58
farsio Umbr. 47
farris Lat. 47
fasiu Umbr. 47
fast OS 169
fastan Go. 169
fastr OI 169
fat OS 159
fater OHG 88
*/faþ-ma-z/ lPGmc. 137
faùr- Go. (proclitic) *109*
faúra(-) Go. *108*
faùr-gággan Go. *108*, 109
faúra-gàggja Go. 109
faur-hāh Go. *104fn.*
faùr-lágeins Go. 104fn.
faùr-lágjan Go. 104fn.
faz OHG 163
[fāxanan] PGmc. 170
feallan OE 154
fearm OE 58
fē-gjarn OI 220
fela OI 168
feoh-georn OE 220
fēolan OE 168
feorh OE 169
feorran OE 154
fēower-dōgor OE 221
fēower-fèald OE 103, *105*
fēowertīgne OE 219
fera Go. 124, 140
ferah OHG 169
ferah OS 169
ferch OFri. 169
ferrana OS 159
ferro OHG 163
fest OFri. 169
festi OHG 169
fettāh OHG 163
fiara OHG 124, 140
Fichte Ger. 64
fídur- Go. 105
fidur-dōgs Go. 221
fídur-fàlþs Go. 105
fidwōr (tiguns) Go. 58fn. *114*
fidwōrtaíhun Go. 219, 221
fientlīh OHG 213
fiertein OS 219
fīf Ger. (dial.) 93
fīf OE 89, 168
fīf OFri. 89, 168
fīf OS 89, 168
fīfl OI 89, 170
figim OIr. 52
fíggra-gùlþ Go. 103, 104, 216
-filhan Go. 168, 184
filippus Go. 146
fim OI 168
fimf Go. 168
fimf OHG 168
**fimflan* PGmc. 89, 170
findan OE 122
findan OHG 122
findan OS 122, 258
finf OHG 89
finna ON = OI 20, 122
finnask ON 20
fino Ru. 149
finþan Go. 122
fior-tagig OHG 221
fiorzehan OHG 219
fiorzuc OHG 114
fisc OE 154, 169
físceras OE 106
fishers NE 106
fisk OFri. 157, 169
fisk OHG 163, 169
fisk OS 159, 169
fiskja Go. 213, 214
fiskos Go. 146, 169
fiskr OI 151, 169
fisks Go. 214
fiss OIr. 189
fiuhta OHG *64*, 65fn.
fíuwer-fàld OFri. 105
fiūwertīne OFri. 219
fjarre OI 151
Fjörgyn ON 60
fjǫr OI 169
fjǫrðr OI 225
fjōrtān OI 219
flāch OFri. *156*
flāmen Lat. 62
flēag, -h OE 126, *153*
flēogan OE 153
flēon OE 153
fliā OFri. 156
fliaga OFri. 156
flō OI 126
flodus Go. 167
*/flōduz/ ePGmc. 137
flœja OI 126
floh OHG 126
floh OS 126
floor-board E 232
flugum OI 121
flutta ON 22
flytja ON 22

fahan Go. 125, 168
fæða ON 190
foehþ OE 125
færa OI 225
fola OE 132
folc OE 168
folcāgend OE 245
folg-e-n OHG 135
foli OI 132
folk OFri. 168
folk OHG 168
fōlk OI 168
folk OS 168
fōlklīðandi ON 245
fōlkrekr ON 67
folktogo OS 245
follon OHG 138
folo OHG, OS 132
fōn OE 125, 127, 168, 170
**fōrjan* PGmc. 225
forlēosan OE 165
forlētes OE 86
forloren OE 165
forma- OE 57
formo- OS 57
forsca OHG 191
forscōn OHG 191
fōstr ON 190
fōt OE 164
fotus Go. 164
Fougonia Ven. 69
fourfold MnE 105
fowls NE 106
**frà+étanan* PGmc. 114
frætwa OE 169
frāgēn OHG 192
fragifts Go. 186, 187, 190
frāhēn OHG 192
fra-hinþan Go. 225
frà+ítan Go. 114
fra-ítiþ Go. *112*, *113*
frama lPGmc. *249*
framea Lat. (Gmc.) 6
fram-gahts Go. 127
fraþi Go. 57
fráuja Go. 146, 225
fráujinōn Go. 225
frawairþan Go. 199
frawardjan Go. 199
frawaurhts Go. 191
frei Ger. 66
fréi-hàls Go. 104, 219, 228
freis Go. *66*, *67*, 167
frendere Lat. 56
frēondlīc OE 213
frēondscipi OE 87
fretan OE 114
Freyja OI 151
frezzan OHG 114
friāre Lat. 56
fricāre Lat. 56
frīeġa OE 154
frīġedæġ OE 154, 155
frīgendei OFri. 157
frīondlīk OFri. 213
friundlīk OS 213
friundskepi OS 87
friunt OHG 228
friuntin OHG 228
friunt-scaf(t) OHG 87
frjā ON 66
frōðr ON 57
frōd OE 57
frôio OS 159
fruot OHG 57
fúglas OE *106*
fugls Go. 55
fūl OE 132
fūl OHG, OS 132
fula Go. 132
fulgins Go. 184
-fulhans Go. 184
-fulhum Go. 184
fūll OI 132
fullans Go. 146.
*/fullaz/ (l)PGmc. 137, 166
fulben OHG 138
fulls Go. 102, 166
fūls Go. 132
fulwian OE 91
fúnins Go. 113
**funsti-* Gmc. 58
fur lPGmc. *249*
fura lPGmc. 249
Furche Ger. 59
**furhō* Gmc. 59
furî lPGmc. 249
furrow E 59
fūst OHG, OS 58
**fūsti-* Gmc. 58
/fyllen/ OHG 138
fýst OE 58

G

g- OI (prefix) 223
g- OI (proclitic) 109
-ǵ- PIE (determinative) 52
ga- Go. (proclitic-pref.) *101*, 107, *108*, 109
**ga-* PGmc. → **ga(n)-*
**-ga-* Gmc. (suff.) 215, 225
ga-arbja Go. 110
gab MnGer. 145
gab OHG 163
gá-baùrþs Go. 110fn.
ga-dars Go. 164
gaddr OI 166
ga-drauhts Go. 121
gærsgrēne OE 233
gaf Go. 145, 146, 147
gaf OI 151
gaf OS 159, 160
gAf Ru. 149
gaft Go. 188
gagana lPGmc. 249
gággan Go. *108*, 127, 186, 188
gahardjan Go. 192
-gahts Go. 127, 186, 188
gahugd Go. 169
gahugds Go. 188
gá-lèiks Go. 110fn.
Gailonius Ven. 69
gailùs Lith. 69
*/gaitz/ ePGmc. 137
gajuk Go. 146, 165
galisan Go. 45
gamainja Go. 60
gamains Go. 60, 101, 110, 224
gān OHG 86
**ga(n)-* PGmc. (proclitic-pref.) 101, *109*, *110*, *110fn.*, *112*, 186, *223*, 224

gangan OS 258
ga-nisan Go. 224
gank- Hitt. 45
gans OHG 89, 168
/gans-/ PGmc. 170
ga-qíman Go. 110, 110fn., 223, 228
gaqiss Go. 189
gardawaldands Go. 245
(ga)raihts Go. 165
garuni Go. 125
gās Ger. (dial.) 93
gās OI 168, 170
gās OS 89
gasaggq Go. 171
ga-saíhvan Go. 107
ga-sandjan Go. 107, 108
ga-skafts Go. 87, 186, 187
gaskapjan Go. 169, 186, 187
gaskoh Go. 146
**gaskota-* Gmc. 215, 225
gasteis Go. 120
gast-i-m Go. 135
-gast-i-R Ru. = NW-Gmc. 135, 149
*/gastiz/ PGmc. 140
gasts Go. 140, 164
gata OI 169
gatamjan Go. 169
gatiuhan Go. 63
gatwons Go. 169
ga-þ- Go. 110
ga-þ-þan-miþ-sandidē-dum Go. 108, 110
ga-uh- Go. 110
ga-u-hva-sēhvi Go. 108
ga-u-láubjats Go. 110
gaus Ger. (dial.) 93
**gaxugð-* PGmc. 188
ga-wrisqand Go. 165
gazds Go. 169
gazza OHG 169
ge- NHG (pref.) 108
ge OE 255
ge- OE (proclitic) 108, 109
ge- OFri. (proclitic) 109
ġeaf OE 154
ġēar OE 154
**geb-* PGmc. (ablaut) 199
geban OHG 163, 186
geƀan OS 159, *160*
**geƀan* PGmc. 205
[geban] pre-OS 160
gebantiu OHG 85
*/gebōi/ ePGmc. 139
gebu OHG 139
gebum Go. 206
gēbun Go. 147
gēde OFri. 224
gefa OI = ON 151, 186
gehan OS 160
gehen NHG 108
gehygd OE 188
geil OHG 69
**gel-* PIE 56
geld OS 159, 173
ge-líc OE 110
ge-líc OLFra. 110
ge-líjk Du. 110
gelimpan OE 168
gelimpfan OHG 168
gemæran OE 124
ge-nesan OE 224
genōg, -h OE 154
géntlewòman NE 107
genus Lat. 164
ġeoc OE 154, 165
geřbti 'to honor' Lith. 55
geřbti 'to clean' Lith. 55
gerdia OS 169
gerta OHG 169
geryne OE 125
ge-sceaft OE 87
gest OE 135
gestas OE 120
gesti OHG 120
gesti OS 120
gest-i-m OHG 135
gestir OI 120
gest-i-un OS 135
gestr ON = OI 22, 135
ġetwinne OE 63
geþingan OE 127
geþungen OE 127, 183
**[gʰaids] PIE 137
gharmás Skt. 164
**ghebh-* PIE 205
**[gʰebʰ-ā-i] PIE 139
**gheH$_1$r-* IE 66
/ghostis/ PIE 164
giba Go. 34
giban Go. 145, 146, 147, 186, 187, 190, 251
giban- Go. 147
gibandei(n) Go. 85
gibenkeo OS 214
[giƀid] pre-OS 160
giƀid OS 160
gib-o-m Go. 135
gibos Go. 34
gib-u OHG, OS 135
gibu Ru. 149
ġiefan OE 154
giefende OE 85
giefendu OE 85
ġield OE 154, 173
gierd OE 169
g(i)est OE 135, 164
g(i)estas OE 120
gif OE 264
gifandi ON 85
-gif+t- Go. 190
gift OHG 186
gihid OS 160
gihugd OS 169
gi-líh OHG 110
gilingan OHG 186
gi-nesan OS, OHG 224
ginōg, -h OS 159
ginuog OHG 163
gi-meini OHG 60, 224
gimeinida OHG 60
gipt ON 186
ġirnos Lith. 53
girnoywis OPr. 53
girnuwis OPr. 53
giruni OHG 125
giruni OS 125
gisai Ru. 149
gi-siht OS, OHG 165
giskaft OHG 87, 186
githungan OS 127
gi-un-sūbren OHG 223
giwitan OS 258
glaggwaba Go. 167
**gl-eǵ-* PIE 53
g-leich NHG 110
**gl-en-g* PIE 53
glézen Bulg. 53

glēžnas Lith. 53
glęzns Lett. 53
g-líkr OI 110
gnōg OI 151
gnōgr OI 223
gnōtt OI 223
gōd OE 154
gōd OFri. 157
gōd OS 159
gōdei Go. 224
gōdi OS 224
gōðr OI 151
gold OE 51, 168
gold OFri. 168
gold OHG 168
gold OS 51, 168
goldfaz OHG 220
gold-hilt-ed OE *228*
golt OHG 51
goodby NE 111
gōs OE 89, 168
gōs OFri. 89, 168
gōs OHG 93
gōs OS 168
got OHG 196
gigotan OS 121
goten OE 121
gotinn OI 121
goþs Go. 146, 224
gigozzan OHG 121
**grāð-* PGmc. (ablaut) 199
gráðe-hǫ̂s OHG 104
grāðr OI 215
grāðugr OI 215
graecus Lat. *173*
graf OS 159
graiþ Go. 146, 199
graipt Go. 86
grāp OE 154
gras Go. 167
grasgroene MDu. 233
grasgrœnn OI 233
grasegruoni OHG 233
grāta OI 225
grātag OHG 215
grātr OI 225
grāvan Skt. 53
gravio OHG 214
grēd-ags Go. 213, 215
grēdus Go. 213, *215*
greif OHG 163
greip OI 151
**greip-* (P)Gmc. 34, 178, (ablaut) 199
greipan Go. 56, 146, 178, 199
greipt ON 86
gréndžiu Lith. 56
grēp OFri. 157
grêp OS 159
gręsti Lith. 56
grētan Go. 225
grēts Go 226, 228
griẽbti Lith. 56
grīfan OHG 163
grifi OHG 86
grindan OE 56
grīpa OFri. 157
grīpa OI 151
grīpan OE 154
grīpan OS 159
gripans Go. 199
gripi OE 86
gripi OS 86
gripum Go. 199
gris French 227
grise French 227
gud-hūs Go. *104fn.*
Gudilub Ostro-Gothic 89
gull ON = OI 51, 168
-gúlþ Go. 51, 104, 168
guma-kunds Go. 219
gunnr OI 164
/gunþa-/ PGmc. 164
guot OHG 163
guotī OHG 224
gutans Go. 121
guti Go. 121
guti OS 121
gutin OHG 196
guton OE 121
gutum Go. 121
gutum OI 121
gutun OS 121
gūþ OE 164
guzzi OHG 121
guzzum OHG 121
gyden OE 121
gyti OI 121
/g^{w}en-/ PIE 147
g^{w}ēni- PIE 164
**g^{w}er-bh-* IE 55
**g^{w}er-H-* PIE 53
/g^{w}hen-/ PIE 164
/g^{w}hn-to-/ PIE 164
/g^{w}hormos/ PIE 164
*[g^{w}m̥tis] PIE 137
**g^{w}r-eH$_2$-n* PIE 53
**g^{w}r-eH$_2$-w* PIE 53
**g^{w}ṛHn-* PIE 53

H
-h(-) Go. (clitic) 112
h- OE (formative) 14
**-ha-/-ga-* Gmc. (suff.) 215, 225
hā OFri. 157
haban OE 244
gi-haban OHG 165
gihaƀan OS 184
[haƀanaz] PGmc. 165
habēn OHG 92
haben OS 263
hæft OE 60, 165
hænep OE 23
-hafjan Go. 169
[háfjaŋan] PGmc. 165
hafjis Go. 181
haft- Go. 165
-haft MnGer. (suff.) 233
haft OHG 60
hah-ai NWGmc. 135
hāhan Go. 45
hāhan OHG 45, 183
haifts Go. 191
haí-hàit Go. 86, 103, 199, 206
háimōþli Go. 219
haírda Go. 214
haírdeis Go. 122, 137, 214
haírtō Go. 104, 122
hairus Go. 122
haitan Go. 199, 206
haitinaR Ru. 149
[haittjan/ pre-OHG 170
/haitjan-/ PGmc. 170
haiþyō Av. 60
halpt Go. 188
hals Go. 62, 168
hals OFri. 168

hals OHG 62, 168
hals OI 168
hals OS 168
hampr ON 23
hana Go. 102, 146
hana OE 154
hana OFri. 157
hanaf OHG 23
hanap OS 23
hand-haft OHG 220
handugs Go. 215
handus Go. 215
handu-waúrhts Go. 220, 236
handworht OE 220
Hanhavaldus Lat. (Gmc.) 15
hani OI 151
hánmi Skt. 164
hano OHG 163
hano OS 159
gihangan OHG 183
hansa Go. 168
/hanxaz/ pre-Gmc. 170
haptr ON 60
hār OI 170
hara OE 184
hardus Go. 192
harixasti(tei) Lat. (Gmc.) 6
*/har-je-s/ lPGmc. 137
harjis Go. 137
harp- Hitt. 66
haso OHG 184
hassa- Hitt. 45
hatr ON 62
hatis Go. 62
haurn Go. 146, 168
háusida Go. *105*, *106*, 113
hausjan Go. 126, 252
[hãxaz] PGmc. 170
hazjan Go. 169
hē OE 91
hē OFri. 157
hēaf OE 154
heals OE 168
hēawan OE 154, 155
hebbian OS 259
**hebbjan* OLFra. 92
heffa OFri. 91
heffen OHG 165, 169
hefftan OS 184
hefja OI 169
heilags OI 152
heilagt OI 152
heizan OHG 199, *206*
heizen OHG *170*
held-a-R NWGmc. 135
helfan OHG 168
hellan OHG, OS 193
helm OE 135, 168
helm OFri. 168
helm OHG 135, 168
helm OS 135, 168
helpa OFri. 168
helpan OE 168
helpan OS 168
hel(p)fan OHG 168
hēofan OE 154
heorte OE 122
heoru OE 122
her Go. 124, 131, 140
her OE 124
hēr OI 124
her OS 124, 131
**H*$_2$*er-bh-* PIE 66
hērēs Lat. 66
heretoga OE 166
herizogo OHG 166
hernuminn OI 220
herta OS 122
heru- OS 123
heru-(drorig) OS 122
heruthrum OS 62
herza OHG 122
Herzog MnGer. 166
hēt OE 86
hēt ON 86
hēt OS 86
hetan OS *256*, *257*, *258*
heyra OI 126
heyrði OI 105
hiar OHG 124, 131, 140
hiaz OHG 86, 199, *206*, 207
hidre Go. 131
hīeġ OE 154
hierde OE 105, *106*, 122, 126, 214
hilm Go. 168
hilpan Go. 168
him OE 14
himma (daga) Go. *114*
hin Ru. 149
hine OE 91
hindar Go. 91
hintar OHG 91
hioðan 159
hiofan OHG 163
hir OS 124, 131
hirdi OS 122, 214
*/hird-ije-s/ lPGmc. 137
hirðir OI 122, 214
hirti OHG 22, 214
hīt OFri. 86
hita Go. 131
hiu (tagu) OHG 114
hiutu OHG 114
hjal ON 193
hjala ON 193
hjalm-r OI 135, 168
hjalpa OI 168
hjarta OI 122
hjǫrr OI 122
hlaða ON 189
hladan OHG 190
hlǣja OI 169
hlāf OE 153, 154
hlāfas OE 153
hlahha OFri. 169
hlahhen OHG 169
hlahjan Go. 169
hlaib Go. 145
hlaiba Go. 145
hlaibs Go. 145
hlaif Go. 145, 146
hlaifs Go. 145, 147, 167
hlaiw Go. 75
hlass ON 189
hlast OHG 190
hlaupa OI 126
hlaupan Go. 126
hlaupis Go. 126
hleapan OE 126
hlēf OFri. 157
hleib OHG 163
hleif OI 151
hleiþra Go. 60
hlewa- Ru. 149
**H*$_1$*l-ew-dh-* PIE 54
hleypr OI 126
hliehhan OE 169

hliepst OE 126
hljōp ON 206
hlopan OS 126
hlopis OS 126
hljōpum ON 206
hlupum ON 206
hnecca OE 166
hneiwan Go. 147, 167
hnyssingr ON 55
hoƀos OS 160
hōƀun OS 184
-hoƒ Go. 146
hōf OE 153, 154
hof OFri. 156, 157
hof OHG 163
hōf OI *151*
hof OS 159, 160
hōf OS 159, 184
hōfas OE 153
hōfar OI 151
-hofun Go. 146
hǫll ON 59
holtijaR Ru. 244
holuntar OHG 59
holzir OHG 196
holz OHG *196*
holzin OHG 196
horian OS 126
horen OHG 126
horn OE 135, 154, 168
horn OFri. 157, 168
horn OHG 135, 163, 168
horn OI 135, 151, 168
horn OS 159, 168
horn-a NWGmc. = Ru. 135, 149
hostis Lat. 164
hovar OFri. 156, 157
hráinja-haìrts Go. *104*
hrains Go. 147, 167
hrāw OFri. 157
**(H$_1$)rebh-* IE 58
hremma ON 58
hremman OE 58
hrēof OE 57
hringr ON 16
hriob OHG 57
hriowa OFri. 157
hrjūfr ON 57
hroRaR Ru. 149
huct OHG 169
hud Welsh, Bret. 65
hugfesta OI 221
huggrjan Go. 184
hugjan Go. 88
huhrus Go. 184
huk- Hitt. 45
hulzin OHG 196
hundraƍ ON 62
hund OE 164
-hund Go. 101, 164
hunƥs Go. 225, 228
*/hurnan/ lPGmc. 137
hurtaliya- Hitt. 65
hus Go. 125
hus OE 125
hūs OHG 104, 125
hūs OI 125
hus OS 125
hut MWelsh *65*
hverr ON 86
hwā OE *90*
(h)wā OFri. *90*
hwæt OE 164
hwat OS 260
hwē OS 90
hweƍer OS *264*
**H$_2$w-eg-* PIE 52
hwek- Hitt. *45*
**H$_3$w-er-* IE 65
(h)wer OHG 90
**Hw-ey-k-* PIE 45
hwie OS 90
hýdro-càrbon NE 113
hygd OE 169
hyggja ON 88

ƕ
(-)ƕa(-) Go. 108, 164
ƕaí-hƍp Go. 104, 111
ƕan Go. 110
ƕárjanō Go. 110
ƕárjanōh Go. 110
ƕarjis Go. 86
ƕas Go. *147*
ƕaƥar Go. 264
ƕeita Go. 146, *167*

I
-i- OE (formative) 14
i- OFri. (proclitic) 109
ina Go. 94
inan OHG 94
ibai Go. 114, *264*
ibn-àssus Go. 111
ić OE 154, 155, 158
ice(-)cream MnE 218
idweit Go. 221
idweitjan Go. 221
ie- OFri. (proclitic) 109
ief OFri. 156, 157
ielfetu OE 59
ieva OFri. 156, 157
-ig MnGer. (suff.) 233
**-iga-* (N)Gmc. (suff.) *215*
iggis Go. 91
-ih OHG (ending) 90
ik OFri. 158
[ik] PGmc. 155
**-ila-* Gmc. (suff.) *224*
im Go. 109, 112
imb Ir. 60
imma Go. 146, 166
**immi* PGmc. 109, 112
/immē/ PGmc. 166
Imporcitor Lat. 60
in- Go. (proclitic) 108
**-īn-* Gmc. (suff.) *224*
-īn- Go., Scand. (suff.) 85
ina Go. 91
inan OHG 91
**-īn(i)z* PGmc. (ending) 106fn.
-ing MnE (suff.) *257*
inn Go. *108*
innana Go. 63
inngaggan Go. 108
-inōn Gmc. (suff.) *225*
interpretāri Lat. 57
**īnz* PGmc. (ending) 106fn.
īowih OE 90
ir OHG 100, 114
irdin OHG 196
is Go. 91, 94, 113, 114
**is* IE 100
**īsarno-* Gmc.-Celtic. 64
ishiya Hitt. 65
ist Go. 87, *114*
ist OHG 87

ist Ru. 87
it PGmc. *261*
ítas Gk. 66
iþ Go. 112, 113
iu OFri. 90
iu OHG 90
iūdex Lat. 61
**iuk-* PGmc. 180
iup Go. 180
iūs (dīcere) Lat. 60
iuventa Lat. 62
iuwih OHG 90
-iz- Go. (suff.) 14
**iz* PGmc. 100, 114

J
-ja- Gmc. (suff.) *214*, 215, 224
-ja- Go. (suff.) 213
jaðarr ON 58
jah Go. 18, 255
**jah* PGmc. *255*
-jan- Gmc. (suff.) *214*, 215, 220, 224
jāni- Skt. 164
jār OHG 163
jār OS 159
jarpskammr OI 234
jaþþan Go. 18
[jehan] pre-OS 160
jeld OFri. 157, 173
jer Go. 146
jēr OFri. 157
jēra Go. 56
jerde OFri. 169
[jihid] pre-OS 160
joh OHG 163
jǫrð ON 253
juggs Go. 183, 184
jugum Lat. 165
juhiza Go. 183, 184
-juk Go. 165, 180
juk OS 159
junda Go. 62
*jut** Go. 91

K
kachazzen OHG 163
kAibA Ru. 148, 149
kal Russ. 59
kalina Russ. 59
**kanḗn* IE 101, 102
/kankos/ PIE 170
kann Go. 192, 257
kánnabis Gk. 23
kara Go. 114
karist Go. 114
karp ON 55
kaupast- Go. 189
kaupatjan Go. 189
kaurn Go. 146
kaus ON 184
kë- Albanian 109
kḗdos Gk. 62
keinan Go. 181
keipa OI 148
kelda ON 56
/kəpónos/ PIE 165
/kèpyonom/ PIE 165
[kerd^{h}-iye-so] PIE 137
ketur- Lith. 105
kind OHG, OS 75
king MnE 18
[kinn-] PGmc. 155, 158
kjōsa ON 184
-klahs Go. 147
**kleŋkwan-* PGmc. 53
kleppr OI 168
kletram Umbr. 60
klinker MHG 53
klismo Go. 167
kløkkr ON 53
**kmtóm* pre-Gmc. *101*
knappo OHG 163
knaũsis Lett. 55
knē OI 151
kneo OS 159
kneo OHG 163
[kneo] pre-OE 155
[kneu] pre-OE 155
[knewan] PGmc. 155
knī OFri. 157
kniwa Go. 167
kniwam Go. 147
*/knþ-je-s/ PGmc. 137
kodde MLG 160
koddi OI 151
kørinn ON 184
kørum ON 184
**kom* IE 109
**kom-* IE (proclitic, pref. *101*, *109*, 110
**kom-móynis* pre-Gmc. *101*
*[kor-ye-so] PIE 137
korn OI 151
korn OFri. 157
kor-o-n OHG 135
kosses OFri. 157
kǫttr OI 133
krabbi OI 151
**krammiþa* Go. 167
krammr OI 167
krampo OS 168
kraũpis Lett. 57
kraupùs Lith. 57
/krēk-/ PGmc. 173
Krekos Go. 124
kreks Go. 173
kriachi OHG 173
Kriahhi OHG 124
kriustan Go. 179
*[kr̥nom] PIE 137
krocha OFri. 157
krusts Go. 147, 167
kuchen MLG 160
kudda OFri. 157, 160
kuman OS 258
kum̃pas Lith. 58
kùmstė Lith. 58
**kumpstė* (pre-)Lith. 58
kuni Go. 164
kunimud-iu NWGmc. 135
*/kunþ-ije-s/ PGmc. 137
kunþjis Go. 137
-kurne Ru. 149
kvað OI 151
kveða OI 151
kvennligr OI 213
kvern ON 53
kvikr ON 55
**k^{w}ǣn-* PGmc. 179
kweth OFri. 156, 157
kwetha OFri. 156, 157
**k^{w}om* IE 110
/k^{w}os/ PIE 147
/kwumdiz/ lPGmc. 137
kyning OE 18

L
labium Lat. 63
labrum Lat. 63
lȁbûd Serbo-Croatian 59
labuť OCz. 59
ladan OHG 190
læran OE 125
**lāt-* PGmc. 179, 206
lāfan OE 58fn.
lāge MHG 52
lagg Go. 146, 165, 168
[laggjan] WGmc. 155, 158
lagjan Go. 169
[lagjan-] PGmc. 155, 158
**lagjanan* PGmc. 88, 170
lāgr ON 52
laiƕ Go. 130
laiƕans Go. 130
laiƕi Go. 130
laiƕum Go. 130
laïkos ORuss. 54
laí-lôun Go. 104, 106, 112, 113
laisjan Go. 125
*/laixw-/ PGmc. 130
lamb Go. 168
lamb OE 168
lamb OFri. 168
lamb OHG 168
lamb OI 168
lamb OS 168
land Go. 168
land OE 168
land OFri. 168
land OI 168
land OS 168
lang OE 154, 165, 168
lang OFri. 157, 158
lang OHG 163, 168
lang OS 159, 168
langr OI 151, 168
lant OHG 168
last OHG 190
lāta ON 86, 179
laþu Ru. 149
ļàudis Lett. 54
laukaR Ru. 126, 149
láus-hàndja Go. 104
lāzan, lāzzan OHG 5, 86, 206
lē OI 124
lēad OE 65
lebedŭ OCS 59
lecchōn OHG 194
lecgan OE 153, 154, 155, 156, 158, 169
leðer OE 65
leder OHG 65
leðr ON 65
ledza OFri. 157, 158, 169
leggen OHG 169
leggian OS 169
leggja OI 88, 169, 170
**legh-* PIE 53
leh OHG 130
**leH$_1$-ǵh-* PIE 53
-leiban Go. 57fn., 58fn.
leihts Go. 183, 191
*/leihwan-/ PGmc. 131
*/leihwis-/ PGmc. 131
*/leihwū/ PGmc. 131
leiƕa Go. 130
leiƕan Go. 58fn. 130
leiƕis Go. 130
leik Go. 213
leiþu Go. 132
lēkeis Go. 68
lėkštas Lith. 52
leo OE 124
leode OE 54
leon OE 124
[léosanan] PGmc. 165
**lēpagi-* PIE 68
**lepan-* Gmc. 62
lepe Norw. 62
**lepjan-* Gmc. 63
lepur OFra. 62
**lepura-* Gmc. 62
ler Bret. 65
leren OHG 125
lerian OS 125, 258
lesan OHG 45
lĕsti OCS 52
let OE 124
lēt OI 124
let OS 124
lēta OFri. 86
lethar OIr. 65
lētan Go. 86
*/leubō/ ePGmc. 139
leubu NWGmc. 126, 129, 135, 139
leudis Gmc. *54*
*[lewb^{h}-ā] PIE 139
/léwsonom/ PIE 165
**ley-k^{w}-* IE *57fn.*, 58fn.
**leyp-* IE *58fn.*
lęzns Lett. 52
lĕzǫ OCS 52
**lH$_1$-egh-* PIE 53
liaig OIr. 68
liáudis Lith. 54
liáudis OLith. 54
liaz OHG 124, 206
līber Lat. *54*, *67*
Līber Lat. 54, 67
līberī Lat. 54
līć OE 110, 154, 155, 158, 213
-lich MnGer. (suff.) *233*
lið OE 132
līð OE 132
lið OI 132
līð OI 132
lid OHG 132
līd OHG 132
lið OS 132
līd OS 132
liehþ OE 124
liet OS 124
-ligr OI (suff.) 213, 222
*/ligwan-/ PGmc. 130
*/ligwī/ PGmc. 130
*/ligwum/ PGmc. 130
līh OHG 213
lihan OHG 124, 130
lihis OHG 130
lihit OHG 124
līht OHG 183, 186
līht OS 183
lihu OHG 130
līk OFri. 110, 158, 213
līk ON = OI 213, 222
līk OS 213
**līka-* Gmc. 155, 213
**-līka* Gmc. (suff.) 213, 223, *230*, 233
like NE 110
-liker OSwed. (suff.) 222
likkon OS 194

líkr OI 110
lìkti Lith. 57fn.
limæn Ossetic 66
lingua Lat. 62
**ling*^{w}*an-* PGmc. 186
**ling*^{w}*+t-* PGmc. 186
**linx*^{w}*t-* PGmc. 183
lippa OE 63
lisāi- Hitt. 45
līse OPr. 52
lissāi- Hitt. 45
liþu Go. 132
liubu Ru. = NWGmc. 129, 149
liuga Go. 66
liut OHG 54
liuti OHG *54*
giliwan OHG 130
liwi OHG 130
liwum OHG 130
ljā OI 124
ljōðr ON 54
ljud(i) Russ. 54
ljudinŭ ORuss. 54
ljudŭ OCS 54
lledr Welsh 66
llw Welsh 66
lōd OS 65
lochir OHG 121, 196
loh OHG 196
lohhir OHG 121, 196
longus Lat. 165
loufan OHG 126
loufis OHG 126
[lózenaz] PGmc. 165
luaide OIr. 65
lubdhá- Skt. 188
**lubh+to-* IE 188
lucerna Lat. 69
lucher OHG 121, *196*
**lughyom* IE 66
luhhir OHG 121 ,*196*
LÚ*hukmatalla-* Hitt. 46
luige OIr. 66
lukarn Go. 69
lukarn-a-staþa Go. 217, 228
**lung* PGmc. 183
lungar OHG, OS 183
/lusénos/ PIE 165
lustus Go. 224
lustusams Go. 224
lyipär Toch. A B 58fn.

M
-m- Baltic, Gmc. (suff.) 57
(*)*-m* IE (ending) *32*
-m OE (formative 14
**-ma-/-man-* (P)Gmc. (suff.) 214
macer Lat. 45
mægen OE 222
mægenweorc OE 222
mæger OE 45
mægeþ OE 120
/mæn-/ PGmc. 170
maēniš Av. 60
mæra OI 124
mag Go. 146, 258
magaði OS 120
magan OS, OHG 222
magar OHG 45
magati OHG 120
magaþeis Go. 120
magen uuerch OHG 222
mag-o OE 135
magr ON 45
magt Go. 145
mag-u NWGmc. = Ru. 135, 149
mag-u OS 135
magun Go. 146
mag-u-s Go. 135
maht Go. 145
mahteigs Go. 215
mahtīg OHG 215
mahtig OS 215
mahts Go. 215
maihstus Go. 191
maiza Go. 125, 146
maklant- Hitt. 45
man Go. 257
man OE 89
man OHG 89
man OS 89
-man- (P)Gmc. (suff.) 214
/mān-/ pre-OE 170
manag Go. 14
manag-falt OHG 221
manag-falþs Go. 221
managizo Go. 14
manigfeald OE 221
mannfall OI 220
māni OI 151
māno OHG 100, 163
māno OS 159
manslago OHG 245
manus Lat. 63, 193
-manwjan Go. 192, 193
manwus Go. 192, 193
māra OE 125, 154
māra OFri. 157
Marcomanni Lat. (Gmc.) 15
mare Lat. 165
marei Go. 165
maren OHG 124
marg-faldr OI 221
māri OHG 163
marian OS 124
-mariR Ru. 149
[marxaz] PGmc. 173
mat Go. 146
mat OI 151
*[mātēr] PIE 137
mat-i-balgs Go. 217, 219, 227
mati-saxs- Gmc. 62
/mātŏr/ PIE 165
mats Go. 219, 228
maurnan Go. 251
māz OHG 61
me OE 90
mē OE *90*
me OS 90
mearh OE 173
mec OE 90
með lPGmc. 249
med Ir. 61
**mēd-* PIE 61
meddiss (túvtiks) Osc. 61
meddix Osc. 61
medéōn Gk. 61
*[med^{h}us] PIE 137
**medos* Italic 61
*/meduz/ ePGmc. 137
megin OI *222*
meginfjall OI 222
meginverk OI 222

megs Go. 75
meiri OI 125, 151
-men- IE (suff.) 214
mēna Go. 100, 146
**mēnōt* IE 100
meodu OE 123
meotu OE 122, 135
meox OE 186
mēr ON 90
meR Ru. 149
mere OE 165
mergōs Lith. 115
merjan Go. 124
mēro OHG 19, 125, 163
mero OS 125, 159
meŕs Osc. 61
mes Go. 124, 131
mes OE 124
Messer Ger. 62
meta OI 122, 123
metan OE 122, 123
metan OS 122
**mey-* PIE 60
mezzan OHG 122
mi OFri. 90
mī OFri. *90*
mi, mī OLFra. 90
mi OS 90
mī OS *90*
mias OHG 124
mið lPGmc. 249
middil-garda OS 220
mið-garðr OI 220
miðr OI 122, 123
midjun-gards Go. 220, 221
migan OE 189
mih OHG 36, 90
míhilnèssi OHG 105
mihtig OE 215
miin OHG 13
mik Go. 90
mik ON 90
mik OS 90
míkil- Go. 104
mikil-dūþs Go. 104, 105
mīl OI 89, 170
miltitou OHG 220
min OHG 13
minniza Go. 193
**minþl-* PGmc. 89, 170
minus Lat. 193
mir OHG *90*
mis Go. 90
/mīs/ OE 124
mita Go. 122
mitan Go. 122
mitid Go. 122
mitid OS 122
*mitiþ** Go. 122
mitt OE 122, 123
mittin-gard OHG 220
mitu OS 122
mixen OE 186
mizzit OHG 122
mizzu OHG 122
mjaðar OI 123
mjǫð OI 123
mjǫðr OI 122, 123
mjǫtuðr ON 61
-mm- Go. (formative) 14
*[mn̥tis] PIE 137
**-mo-/-men-* IE (suff.) 214
*/mōdār/ ePGmc. 137
mōdig OS 215
mō-dor OE 165
[mǭ̆ðōr] PGmc. 165
modus Lat. 61
mǫg-r OI 135
móin OIr. 60
molīna Lat. 214
molinārius Lat. 214
mon OE 89
mon OFri. 89
mōna OE 100, 154, 170
mōna OFri. 157
monēta Lat. 133
mōt OE 258
motti OI 150, 151
moþþe OE 154
**moyno-* PIE 60
***-ms* IE (ending) 32
multam (dīcere) Lat. 60
mund OHG 168
mund ON 63
*/mundiz/ lPGmc. 137
mūnia Lat. 60
muniz(za) OHG 133
munnr OI 168
munt OHG 63
munþ Go. 168
muotig OHG 215
*/mūs/ ePGmc. 137
*[mūs] PIE 137
must OE 133
mustum Lat. 133
mūth OFri. 168
mūth OS 168
mūþ OE 168
mynet OE 133
mys OE 124

N
-n- PIE (determinative) 53
-n- IE (infix) 224
-na- Go., Scand. (suff.) 85
nā- OI 124
nacht OFri. 157
nāchte OFri. 91
nackot OHG 169
nacod OE 169
nǣron OE 114
næs OE 114
nah OHG 124
nah OS 124
naht OHG 163
naht OS 159
nahts Go. 146, 165, 171
nakad OFri. 169
nakkvarr OI 111, 114
nalles OHG 114
nals OHG 114
nam Go. 146
nam OFri. 157
nam OHG 163
nam OI 151
nam OS 159
-nam Ru. 149
nāmi OHG 188
namt Go., ON 188
namum OHG 124
namun OS 124
-nan- Go. (suff.) 199
naqaþs Go. 146, 169
nasida Go. 179, 180
nasjan Go. 179, 180
nāst OE 114
nathwær OE 265
naudan Finnish 16

naut ON 16
nauta Finnish 16
/nazjan-/ PGmc. 170
-nē IE (adv. suff.) 63
ne (P)Gmc. 90, 114
**ne(+oinom)* PLat. 63
ne OS 266
neah OE 124
neaht OE 154, 165, 171
neat OE 16
neen Du. 63
nefnda ON 22
nehv Go. 124, 146
nein OHG 63
neli OFri. 91
**nem-* PGmc. (ablaut) 199
nema OFri. 89
nema OI 151
nemamēs OHG 195
neman OHG 89, 163
neman OS 159
(zi)nemanne OHG 89
(te) nemanne OS 89
nemannes OHG 89
nemum Go. 124, 206
nēn OS 63
neom OE 114
nera OFri. 169
neren OHG 169
nerian OE 169
nerian OS 169
nerien OHG 170
nerren OHG 170
nest OE 164
nēt OFri. 91
neth OFri. 91
netwan OS 265
**ni (+ain)* Gmc. 63
ni Go. *114*
ni OS 261, *265*
nibai Go. 114
nīdus Lat. 164
night MnE 171
niht OE 165
nima OFri. 89, 157
niman Go. 146
niman OE 89, 154
nimand Go. 186
(to) nimenne, -anne, -onne OE 89
nimit OHG 195
nimis OHG 195
nio OHG *114*
nis OFri. 91
nis OS 265
nist Go. 91, 114
ni-u (bai) Go. 264
niujila Ru. 129, 149
[nizdos] PIE 164
-nn ON (ending) 29
-nō- Go., Scand. (suff.) 85
**-no-* IE (suffix) 29, 61, 63
noch Ger. 172
noctis Lat. 165
nœnum OLat. 63
nøkviðr OI 169
nog Du. 172
nǫkkur OI 111, 114
nōm OE 154
nomen OE 106
nomon OE 124
nōmum OI 124
nōn Lat. 63
nōtt OI 151
nox Lat. 165
**-nR* pre-ON (ending) 29
-ns IE (ending) 32
-nu- Go. (clitic) 108
**númanaz* PGmc. 106
numans Go. 106
numja Go. 235
nyssa MnNorw. 55

O
-o Go. (ending) 14
ō-/ū- OScand. 103, 223
ochtach Ir. 64
octō Lat. 165
-oð OS (ending) 90
oðerra OE *106*
Ōðinn ON 59
odr Cz. 58
ōðr ON 59
ððre ME 106
o-drina OCS 58
o-drŭ OCS 58
øðli OI 120
œth OIr. 66
offer OFri. 157
offer OHG 162, 163
offerre Lat. 152, 162
offra OI 151, 152
oímē Gk. 65
oĩmos Gk. 65
**oinom* PLat. 63
oitos IE 66
oĩtos Gk. 66
ok OI 151
**oktṓw* IE 102
ōkuðr OI 223
ǫl OI 120
**olēwo* VLat. 69
omphḗ Gk. 164
-ond OS (ending) 90
óuga-tòra OHG 105, 111, 220
Oulphilas Gk. (Gmc.) 6
ǫr ON 62
orbe OIr. 66
**orbhos* IE *66*
orbus Lat. 66
Orbius Gaul. 66
orð OI 111, 121, 168
orpe OIr. 66
**-os* IE (ending) 29
ōsel OE 168
ǫsp OI 169
ǫxl ON 63

P
pæþ OE 154
panīcum Lat. 133
*[paŋkonom] PIE 137
paraskaiwe Go. 91
paro OHG 58
patḗr Gk. (inflexion) 100
path OFri. 157
*[pat-mo-s] PIE 137
paũkštis Lett. 55
pêda OS 159
per(e)g OHG 18
pérnai Lith. 56
pęstĭ OCS 58
**pəter*, *[pətēr] PIE 101, 137
petur- Umbr. 105
peúkē Gk. 65fn.

**pewk-* IE 64
**pewk̑-* IE 65fn.
pfad OHG 163
pfenih OHG 133
pfost OHG 133
pfuzzi OHG 133
pherinctac OHG 91
pheúgo Gk. 69
[pʰewkta] Celtic 64
*/p(ʰ)olnetē] PIE 139
phunt OHG 133
phuzzi OHG 88
**pinstĭ* Proto-Slavic 58
pìrmas Lith. 57
pirmas OPr. 57
plagian OE 167
/plēnos/ PIE 166
plēnus Lat. 166
**ple-tro-* IE 65
**plew-* IE 65
*/pln/, /plnos/, *plnos*, [pl̥nos] PIE 102, 137, 138, 166
plōg OE 155
plōh OE 155
*[plōtus] PIE 137
**pn̥sti-* IE 58
prættig OE 167
pramŭ OCS 58
pratim Toch. A 57
pratiṃ Toch. B 57
prātin OPr. 57
prâts Lett. 57
**pr-eH₂-y-* IE 66
**pret-* PIE 57
priyá- Skt. 66
**pr̥kā* PIE 59
**prk+sk-* IE 191
pōl OE 164
*/polnete/ PIE 139
póly+èthyl NE 113
pondō Lat. 133
porca Lat. 59
poscō Lat. 191
post OE 133
postem Lat. 133
poûs Gk. 164
puffen MLG 160
pugg Go. 146
**puktāko-* PIE 64
pund Go., OE 133
pungr OI 151
**punkstė* Proto-Baltic 58
pušìs Lith. 65fn.
puteus Lat. 88, 133
pyffan OE 160
pytt OE 88, 133

Q

qairnus Go. 53
qast Go. 189, 190
qaþ Go. 146, 147
qens Go. 124, 164
qino Go. 147
qiþan Go. *146*, *167*, 189, 251
qrammiþa Go. 147, 167
quad OHG 163
quað OS 159, 160
quān OS 179
quattuor Lat. 58fn.
quedan OHG 163
queðan OS 159, 160
quek OHG 196
queman OHG 89
quirna OHG 53
quod Lat. 164
quom OLat. 110

R

Rad MnGer. 145
rād OFri. 157
**raða* Gmc. 62
raie French 59
-raihts Go. 165
**raikjan* Gmc. 67
-rakjan Go. 169
-rannjan Go. 192, 193
rārian OE 55
ratiō Lat. 62
ratum Lat. 62
raþjo Go. 62, 169
raudai Go. 146
rauðr OI 151
raž Serbo-Croation 53
rēad OE 154
**rebh-* IE 58
rebro OCS 58
reca OWelsh 60
reċċan OE 169
rechenon OHG 67
recht OIr. 66
recken OHG 169
Rectugenos Gaul. 66
rectus Lat. 165, 187
redea OHG 62, 169
reðia OS 169
**rēg-* IE 67
**reǵ-* IE 67
rega Provençal 59
rĕgere Lat. *67*, 187
reichen Ger. 67
reiks Gmc. 61
reiks Go. 68
Reiter Ger. 60
Reitia Ven. 56
reizh Bret. 66
reju Lett. 55
**rek-* Gmc. 67
**rēk-* Gmc. 67
rekja OI 169
rekkian OS 169
**rektu-* Celtic 66
relictus Lat. 192
relinquere Lat. 192
Remagen Ger. 67
remmen MDu. 58
rengas Finnish 16
reoht OE 165
rethe OFri. 169
rethia OS 62
rettr ON 66
rēx Lat. 48, *61*, 67
reza OFri. 169
rhaith Welsh 66
rhin Welsh 65
rhych Welsh 59
rhydd Welsh *66*, *67*
rib(b) OE 58, 153
ribb OFri. 156
ribb(i) OS 58, 158
[ribbj-] WGmc. 153, 156, 158
[riƀj-] PGmc. 153, 156, 158
**rica* Gaul. 59, 60
rieju Lith. 55
rif ON 58
**rīg-* Celtic 67
-rīges Gaul. 68

rign Go. 75
Rīgomagus Lat. (Celtic) 67
riht OE 165
**rīk-* Gmc. *67*
rīkr ON 68
rin Bret. 65
rinnan Go. 192, *193*
riṇvati Skt. 193
rippi OHG 58
riqis Go. 145, 146
riqiz Go. 145
riqiza Go. 145
rira ON 55
ritera OHG 60
rītan OHG 183
giritan OHG 183
ritum OHG 183
-ro- IE (suff.) 58
rocko OHG 53, 163
rôd OS 159
rogga OFri. 157
roggo OS 53, 159
Rōma Lat. 134
Rōmāni Lat. 134
ro-midar Ir. 61
rosamo OHG 190
rōt OHG 163
rotamo OHG 190
rotōn OS 190
rož' Russ. 53
**rudh+s+men-* IE 190
**rudh+men-* IE 190
rudzis Lett. 53
**rugan-* PGmc. 53
**rugi-* PGmc. 53
rugiaĩ Lith. 53
rugr ON 53
rugỹs Lith. 53
rūh OE 153
rūm OE 154
rūm OFri. 157
rūm OI 151
rūm OHG 163
rūm OS 159
Ruma OHG, OS 134
Rumoneis Go. 134
rūn OE 65
rún OIr. 65
rūna OHG 65
**rūnō-* Gmc. 65
runo Ru. 149
run-o-R NWGmc. 135
runs Go. 192, 193
růžĭ OCS 53
ryge OE 53
rỹni OI 125

S

-s- PIE (determinative) 52
-s MnE (ending) 14
-s Go. (ending) 29
***-s* IE (ending) 32
sa Go. 36
-sā IE (suff.) 189
Sabazios Thracian 67
sabbato Go. 146
sabbato daga Go. 91
sacēna Lat. *62*
sacer Lat. 60
sad OS 124
sād OI 124
sæd OE 124
sæfar OI 151
sæt OE 132
sagēn OHG 92
sagesna OHG 62
[saggj-] WGmc. 158
**sāgiyesi* IE 113
**sāgiyō* IE 113
[sagj-] PGmc. 158
sagq Go. 171
sá-h Go. 110
sahum OHG 124
saiv Go. 146, 147
saivt Go. 191
sāian OHG 163
saihs Go. 169
saiv Go. 113
saivan Go. 146, 147, 165, 169, *191*, 192
-saivans Go. 147
saiviþ Go. 115
saislep Go. 34
-saizlep Go. 34
saitas Lith. 65
Saite Ger. 65
saite Lett. 65
**sak-* IE 60
**sakesna* Italic 62
saklais Hitt. 60
saks OS 62
sálbete MHG *106*
sálbō- Go. 104
sálbōda Go. *105*
sálbō-dēdeima Go. 111
sálbō-dēdeina Go. 104, *105*
**salbō-ðēðīmē* PGmc. 111
sálbōdēs Go. 111
**sálbōðēz* PGmc. 111
salbom OHG 36
sálbōta OHG *106*
salbte NHG *106*
saljan Go. 169
salt Go. 168
salt OFri. 168
salt OI 168
salt OS 168
šáltas Lith. 56
šaltìnis Lith. 56
[salxaz] PGmc. 173
salz OHG 168
sambaztag OHG 91
sammœðri OI 234
Samstag Ger. 91
sanciō Lat. 60
sang MnE 176
[sangjan] PGmc. 155
sannr ON 60
sāpō Lat. 44
saparyáti Skt. 69
sápati Skt. 68
sat OHG 124
sāt OI 132, 225
satido Ru. 149
-satjan Go. 169
**satjan* PGmc. 225
sāttr ON 60
satya- Skt. 60
Saum MnGer. 214
sāum OI 124
sauþ Go. 146
sawon OE 124
sawun OS 124
Saxon E 62
Saxones Lat. (Gmc.) 6
**saxsa-* Gmc. 62
saxum Lat. 62
sāze MHG 132

scabō Lat. 164
sceadu OE 120
sceafan OE 164
sceal OE 154
scealt OE 87
sceattes OE 154
scēawere OE 214
sceld OE 122
sceldes OE 122
sceþþan OE 170
schelt OHG 122, 123
scheltes OHG 122
schuos Go. 86
scieppan OE 169
scip OE 154
scōch OFri. 157
scōh OE 153, 154, 173
scrūd OE 167
sculan OE 154
scūwa, scuwa OE 155
scyld OE 122, 168
scyldes OE 122
sealh OE 173
sealt OE 168
seam MnE 214
seax OE 62
sechim OIr. 68
sechum OIr. 68
secus Lat. 68
sedeō Lat. 164
sedēre Lat. 63
**sed+to-* IE 189
ge-segen OE 165
[segenaz] PGmc. 165
segg OS 158
**seggjan* OLFra. 92
seggr ON 62
*Segimundus*Lat.(Gmc.)6
segisna OS 62
[ségʷenaz] pre-Gmc. 165
sehan OHG 169
sehan OS 169
sehs OHG 169
sehs OS 169
[sehʷanan] PGmc. 165
sehum Go. 124, 147
seiðr ON *65*
seito OHG 65
**sekʷ-* IE 68
**sekʷemā* PIE 68
/sekʷénos/ PIE 165
/sékʷonom/ PIE 165
/sekʷ-ti-/ PIE 165
selb OHG 168
self OE 168
self OFri. 168
self OS 168
selja OI 169
sella OFri. 169
sellan OE 169
sellen OHG 169
sellian OS 169
senaf OHG 133
sengan OE 155
[sengʷh-/ PIE 164
sententiam (dīcere) Lat. 60
**senti* IE 109
sēon OE 165, 169
**sep-* IE 68
**sepānios* Celtic 68
Separi Ill. 69
**sep-el* PIE 69
sepelit Lat. 69
Sepiena Ven. 69
**sep-on-io* Ven. 69
Sep(p)iena Ven. 69
sequor Lat. 62
servus Lat. 54
sess ON, OE 63, 189
sess OS 189
sessum Lat. 189
sessus Lat. 63
-sēt Go. 132
set OE 132
set OI 132
setja OI 169, 225
settian OS 169
setta OFri. 169
settan OE 169
seþs Go. 124
sew MnE 214
ge-sewen OE 165
[séwenaz] PGmc. 165
sex OFri. 169
sex OI 152, 166
[sexs] PGmc. 152
**sexʷeði* PGmc. 115
sez MHG 132
sezzen OHG 169
**sH₂y-* IE 65
siā OFri. 169
sibb OE 169
sibbe OFri. 169
sibbia OS 169
sibja Go. 67, 169
sīð OE 89
sīð OS 89
-siden OE 65
siðon OS 258
sidsa OE 65
siehþ OE 115
siex OE 169
sifjar OI 169
siġe OE 154
sigewīf OE 253
siggwan Go. 164, 169
sigi- OS 159
sigqan Go. 88
sihit OHG 115
siht OHG 191, 192
sik ON 20
silba Go. 168
Silva (Bācenis) Lat. (Gmc.) 134
sināpis Lat. 133
sind Go. 109, 112
sind Go., OE, OFri., OS 112
sind OHG 89
**sinði* PGmc. *109*, 112
sing MnE 176
singan OF 164, 169
singan OHG 164, 169
singan OS 164, 169
singeth ME 19
sings ME 19
/singw-/ PGmc. 164
sinkan OS, OE, OHG 88
sint OHG 112
siohtuom OHG 222
sipianusa Raet. 69
siponeis Go. 68
sippa OHG 169
Sippe Ger. 67
sitan Go. 164
sitan ON 189
sīth OFri. 89
**sitjan-* PGmc. 253
sitls Go. 132
sittan OE 164, 189
sittian OS 189
siujan Go. 214

siunga OFri. 164, 169
siuwen MHG 214
sjā OI 169
sjalfr OI 168
sjūkdōmr OI 222
-sk- PIE (determinative) 52, 191
skaban Go. 164
skado OS 120
skadus Go. 120, 192
skadwjan Go. 192
skal Go. 146, 258
skal OHG 163
skal OI 151
skal OS 159
skalk Go. 168
skalkinōn Go. 225
skalks Go. 225
skalt OHG 188
-skapi WGmc., NGmc. (suff.) 87
skark ON 59
skato OHG 120
skattans Go. 145, 146
skattar OI 150, 151
skattes OS 159
/skaþjan-/ PGmc. 170
skaut OI 225
skazzes OHG 163
skef OHG 123, 196
skel OFri. 157
skeld OS 122
skelde OFri. 168
skeldes OS 122
skelių Lith. 56
skelo OFri. 157
skepfen OHG 169, 186
skepja OI 169
skepp Swed. 123
skeppa OFri. 169
skeppian OS 169
skettes OFri. 157
skib Dan. 123
skif OHG 123, 163, 196
skild OS 122
*skildaus** Go. 122
skildes OS 122
skildu Go. 122, 135
skildus Go. 122
skilt OHG 122, 123
skiltes OHG 122
skip Go. 146, 167
skip OFri. 157
skip OI 151
skip OS 159
**skip-* PGmc. 182
skjaldar OI 122
skjǫldr OI 122, 135
skjōta OI 225
skjōtr OI 225
skō OI 151, 152
skōh OS 159
[skōh] pre-OI 152
skolan OHG 163
skot OI 225
[skōxan] PGmc. 152
[skōxaz] PGmc. 173
skrŭgŭtati OCS 59
skulan Go. 56
skuld Go. 168
skuld OI 168
skuld OS 168
skult OHG 168
skulum Go. 200, 206
skulum OI 151
skulun Go. 146
skulun OS 159
skuoh OHG 163
**skuti-* Gmc. 215, 225
slah Go. 145
slaha Go. 145
slahan OHG 224
slegel OE 224
slegil OHG 224
slēpa Go. 226
slēpan Go. 226
slepand Go. 167
smakka Go. 194
smakkans Go. 145 ,146
smalista Go. 167
smidda OHG 161
smiththa OHG 161
smitta OHG 161
snægel OE 56
snaiws Go. 167
šnâk East Prussian 56
snākė Lith. 56
snau Go. 202
snecko OHG 56
snēowan OE 202
**sneU-* PGmc. 202
snewum Go. 202
gisnitan OHG 195
snitum OHG 195
sniwan Go. 202
sniwans Go. 202
snūa ON 202
**so-* IE 67
socius Lat. 62
sodalis Lat. 67
soecan OE 125
sœkja OI 125
søkkva ON 88
søni OI 121
**soitos* Celtic 65
sōkareis Go. 214
sōkeis Go. 113, 181
sokian OS 125
sōkja Go. 113
sokjan Go. 125, 214
son NE 106
/song^{w}h-/ PIE 164
sōns Lat. 60
sōt OI 225
-spaiw Go. 146
sparo OHG 168
sparus Lat. 62
sparwans Go. 168
spāw OE 154
spearwa OE 168
speiwand Go. 146, 164
spēo OHG 163
sper OHG 62
spêw OS 159
spinnand Go. 167
spīwan OE 154, 164
spīwan OHG 163
spīwan OS 159
spjō OI 151
spjǫr ON 62
splīta OFri. 167
spǫrr OI 168
sprauto Go. 167
spuō Lat. 164
**stā-* PIE 52
stab OHG 89
stack MLG 58
stad Go. 145
stað OI 151
stada Go. 145
staðinn OI 224
stado OCS 52
stado Russ. 52

staðr ON 22
stads Go. 145
stæf OE 89
staf OS 89
*/staig-/ PGmc. 130
*/staiga/ ePGmc. 137
stain Go. 146, 171
**stain-* PGmc. 29
staina Ru. 29, 126, 149
**stainaz* PGmc. 29
stains Go. 29, 125, 167
stairnons Go. 166
-staí+stàld Go. *113*
stakkr ON 58
stān OE 29, 125, 154, 171
stān OHG 86
sta-n-dan Go. 189, 224, 228
stásis Gk. 164
-stass Go. 189
staþ Go. 145, 146
staþs Go. 145, 164
stauid-e-s Go. 135
stē OI 130
stede OE 164
stef OE 89
stef OFri. 89
stef OS 89
steg OHG 131
**steH*$_2$- PIE 52
**steH*$_2$*-dh-* PIE 52
steig OHG 225
*/steigan-/ PGmc. 131
*/steiganan/ ePGmc. 137
*[steig^{h}onom] PIE 137
*/steigis-/ PGmc. 131
*/steigū/ PGmc. 131
stein MHG, NHG 29
stein OHG *29*, 125, 163
stein OI 151
steinn ON = OI 29, 125
stēn OFri. 29, 157
stēn OS 29, 125, 159
steorra OE 166
/sterno-/ PIE 166
/sterr-/ PGmc. 166
stiaga OHG *131*
stiega OHG 197
stīg OI 130
stīga OHG 197
stīga OI 130
stīgan OHG *131*, 225
*/stigan-/ PGmc. 130
*/stigaz/ PGmc. 131
stigi OI 122, 130
*/stigī-/ PGmc. 130
stiginn OI 130
stīgr OI 130
stíg-ràp OE 111
stigum OI 130
*/stigum-/ PGmc. 130
stírrup NE 111
stocces OE 154
stocches OHG 163
stōð OE 52
stōð ON 52
stódas Lith. 52
sto-gŭ OCS 58
*[stoig^{b}a] PIE 137
stokkar OI 151
stokkes OFri. 157
stokkes OS 159
stol Go. 146
stōl OE 154
stōl OFri. 157
stōl OI 151
stōl OS 159
stone MnE 171
stophon OHG 133
stōþ Go. 224
stōþum Go. 224
strǣt OE 87
strāta Lat. 86
strāta OS, OLFra. 87
strāz(z)a OHG 87
strēt(e) OE, OFri. 87
strīdan OS 252
striks Go. 167
stuol OHG 163
stuot OHG 52
stuppa Lat. 133
suema[n]de Ru. 149
sulichero OHG 18
sulicheru OHG 18
sum OS 265
sun-au Go. 135, 139
*/sunawi/ ePGmc. 139
sundia OS 60
*[sun-ew-es] PIE 139
*/sunewi/ ePGmc. 139
*[sun-ew-i] PIE 139
sunjus Go. 121, 139
sun-iu OHG 135, 139
sunkingas Lith. 56
sunna OHG 163
sunna OI 151
sunna OS 159
sunne OE 154
sunne OFri. 157
sunno Go. 146
*[sun-ow-i] PIE 139
suntea OHG 60
sunr OI 151
súnu OE *106*, 154
sunu OFri. 157
sunu OHG 163
sunu OS 159
sunus Go. 146
suochāri OHG 214
suochen OHG 125, 214
supernē Lat. 63
suus Lat. 67
svala OI 168
svartr OI 168
sverruneí Osc. 61
svim(m)a OI 151
svoboda Slavic 67
swala OS 168
swale OFri. 168
swalwa OHG 168
swangar OHG 56
swarjan Go. 61
swart Go. 167, 168
swart OFri. 168
swarz OHG 168
swealwe OE 168
sweart OE 168
swellan OHG 193
**sw-en-k-* PIE 57
swilo OHG 193
swimma OFri. 157
swimman OE 154
swimman OHG 163
swimman OS 159
*/swīnan/ ePGmc. 137
*[swīnom] PIE 137
**s(w)o-* IE 67
syngva OI 164, 169
syni OI 121

T
-t- IE (enlargement) 64
-t PGmc. (ending, 2 sg. pret.) 86, *188*, *189*
-t Ru., Go., OHG (ending of *ist*) *87*
tā ON 63
tac OHG 111
tacen OE 138
tāch OFri. 157
tag OHG 88, 121, 163
taga OHG 121
tagu OHG 114
taih Go. 119
[taih] pre-OI 152
taihum Go. 119
taihun Go. 164
[taix] PGmc. 152
*/taiknan/, *[taikn̥nan] PGmc. 138
taka OI 151
talða ON 22
tanginom Osc. 61
tauh Go. 119, 129, 146
*/tauh-/ PGmc. 128
tauhans Go. 128, 129
tauhi Go. 128, 149
tauhum Go. 119, 121, 128, 129
taui Go. 146
taujan Go. 181, 251
taujan- PGmc. 251, 253
*[tauja-] pre-Go. 181
[táux-] PGmc. 166
tawi . . . Ru. 251
tawida Go. 181
tawid-e NWGmc. 135
tawid-o NWGmc. = Ru. 135, *149*
*[tawja-] pre-Go. 181
tē OI 151, 152
tēah OE 154, 166
teilen OHG 125
telja ON 22
temja OI 169
temma OFri. 169
temman OE 169
tenuis Lat. 166, 193
tēon OE 60, 154, 166
teoru OE 56
[téox] PGmc. 166
[téoxanan] PGmc. 165
**teutā* IE 48, 61
*/teuxis/ PGmc. 130
*/teuxan-/ PGmc. 130
*/teuxū/ PGmc. 130
-tha Skt. (ending) 188
thahta OS 125
thahti OS 125
than OFri. 157
than OS 159
thar OHG 262
thar OS *256*, *257*
thaz OHG 18, 161
theãs Gk. 115
thennian OS 169
therve OFri. 168
thī OFri. 90
thī OS 90
thigi OS 122
thihan OS 127
thik OS 90
thiodan OS 103
thōr OFri. 168
thorn OS 159
thuhta OS 125, 127
thunkid OS 127
thwerh OFri. 168
**-ti-* IE (suff.) 224
ti- PGmc. (suff.) 191
tiā OFri. 157
tiehþ OE 123
tīen OE 164
tiguns Go. *114*
[tīhan] pre-OI 152
tilarids Go.(?) 6
tiohan OS 159, 160
tior OHG 86, 163
tīræðr ON 62
tīrr ON 197
tiuha Go. 129
tiuhan Go. 129, 146
tiuhis Go. 129
[tīxanan] PGmc. 152
tjā OI 151, 152
tjara ON 56
tjūgari OI 214
*/tngōni/ ePGmc. 139
*[tŋktus] PIE 137
/tnwis/ PIE 166
tô lPGmc. 247
tō OE 253
-to- PIE (suff.) 51, 188, 189
[tóg-] PGmc. *166*
[tóganaz] PGmc. 165
togen OE 166
togian OE 166
tōh OE 153
tôh OS 159, 160
tohter OHG *161*
tōk OI 151
tongere Lat. 61
tongitio Praenestian 61
tooien MnDu. 181
tooyen MDu. 181
tor- OI, OE (pref.) 223
tor-begīete OE 223
**tosmē* IE 109
touffan OHG 91
touto Osc. 61
touwen MLG 251
tragan OHG 163
-tramp Go. 168
tremissis Lat. 133
trēow OE 155
treuua OHG 162
treuwa OS 159
triggwa Go. 85, 146
trimissa OHG 133
trims OE 133
trinkan OHG 168, 226
-triu Go. 167
triuua OHG 85, *161*, 162, 163
triuwa OHG 85, *161*, 162, 163
triūwe OFri. 157
tr̥nam Skt. 164
trog, *troh* OE 155
tropfo OHG 163
trunc OHG 226
truog OHG 161, 162, 163
tryggva ON 85
tryggvan OI 151, 152
[túg-] PGmc. 166
*[tugan-/ PGmc. 128
*/tugī-/ PGmc. 128
[túgg-] PGmc. 166
tuggen ME 166
tuggō Go. 62, 146
tugon OE 121

*/tugum-/ PGmc. 128
tugun OS 121
[túkk-] PGmc. 166
túkstantis Lith. 51
tūkstuots Lett. 51
tunga OI 151
tunga OS 159
tunge OE 154
tunge OFri. 157
-tum Indic (inf. marker) 257
tuom OHG 87
tuon OHG 86
turma Lat. 62
tūsimtons OPr. 51
**tū̆s-ḱn̥tyom* PIE 51
tūvtiks Osc. 61
**tuz-* PGmc. (pref.) 101
tuz- Go. (pref.) 223
tùz-wērjan Go. 108, 223
**tuzwērs* Go. 223
tveggja ON = OI 85, 151, 152, 193
tveim(r) ON 193
tvennr ON 63
twaddje Go. 85, 146, 193, 194
twalif Go. 57, 57fn.
twai Go. 147, 167
twaim Go. 193
tweio OS 159
twelif OS 57fn.
twìs-stándan Go. 108
tysęšta OCS 51
týsjača Russ. 51

Þ
Þa- Go. (formative) 14
Þā OI 151
Þæc OE 90
Þætti OI 125
Þagkjan Go. 61, 186
Þāh OE 183
Þahta Go. 125, 186
Þahtedi Go. 125
Þaih Go. 183
Þaihans Go. 183
Þaihi Go. 122
Þaihum Go. 183
Þamma Go. 14, 109, 112
Þan Go. 18, 146
Þan OE 154
-Þanjan- Go. 169
Þank Go. 171
**Þanx-* PGmc. 183
Þar PGmc. *261*
Þar Ru. *149*
-Þarba Go. 168
Þarf Go. 34, 168, 258
Þarf OI 168
Þat Ru. 149
Þatist Go. 114
Þātta OI 125
Þātti ON 186
Þat-uh Go. 110
Þaurƀ- Go. 186
**Þau* PGmc. 113
Þaurbum Go. 34
Þaurfts Go. 186
Þaurnjus Go. 146, 164
**Þazmē* PGmc. *109*, 112
Þe OE 262
Þē OE 90
Þeah OE 183
Þearf OE *168*
Þec OE 90
Þeihan Go. 127, 183
Þekkja ON 186
Þekta ON 186
Þenja OI 169
Þennen OE 169
Þēoden OE 61, 103
Þeon OE 127, 183
Þēr ON 90
Þerxa lPGmc. 247, 249
Þes OE 87
Þesse ON 87
Þēttr OI 127
**Þéuðanaz* PGmc. 103, 106
**-Þi-* Gmc. (suff.) 224
Þige OE 122, 183
Þigon OE 183
Þik ON 90
**Þinx-* PGmc. 183
Þiuda Go. 61
Þiudans Go. 61, 103, 106
Þiudin- Go. 104
Þiudin-àssus Go. 104, *105*, 113
*/Þīxt-/ dial. Gmc. 127
Þjóðann ON = OI 61, 103
Þlauh Go. 126
Þlauhs Go. 126, *167*
Þliuhan Go. 108
Þohte OE 125
Þǫrf OI 168
Þorn OE 154, 164
Þorn OFri. 157
Þorn OI 151
Þōtta OI 125, 127
**Þreskån-* PGmc. 202
Þridja Go. 167
Þrymm OE 62
Þrymma OE 62
Þugkeiþ Go. 127
Þuhta Go. 125, 127
Þuhte OE 125, 127
Þuk Go. 90
**Þung-* PGmc. *183*
*/Þunk-/ PGmc. 127
*/Þunkīp/ Go. 127
*/Þunniz/ PGmc. 166
*/Þunxtuz/ lPGmc. 137
Þus Go. 90
Þūsund ON 51
Þūsundi Go. 51
*/Þūxt-/ dial. Gmc. 127
*/Þūxtuz/ dial. Gmc 137
Þverr OI 168
Þwah Go. 147
Þwahan Go. 167
Þwairhs Go. 168
Þweorh OE 168
Þyncþ OE 127
Þykki OI 127
Þynne OE 166

U
-u(-) Go. (clitic) 108, *110*, 112
**-u* IE (clitic) 110
-ū OI (clitic) 103
ū- OScand. (pref.) 223
**ùƀ-* PGmc. (proclitic) 109
uƀa lPGmc. 249

uƀer lPGmc. 249
úbil-waùrdjan Go. 108
úbil-waùrds Go. 108
ub-uh-wōpida Go. 108
uf lPGmc. 249
uf- Go. (proclitic) 107
**úf-* PGmc. (proclitic) 109
Ufitahari Ostro-Gothic 89
uf-wōpjan Go. 107, *108*
**-uga-* Gmc. (suff.) 215
-ugr NGmc. (suff.) 215
-uh(-) Go. (clitic) *110*, 112, 255
**-u-k*^{w}*e* IE (clitic) 110
ulfr OI 123, 168
umƀi lPGmc. 249
umen Umbr. 60
un- Go., OE, OFri., OS (pref.) 223
ún- OE (pref.) 103, 223
**un-* PGmc. (pref.) 103
uncūð OE 223
unƀer lPGmc. *249*
ungentlemanly E 228
unguen Lat. 60
unkund OHG 223
unkunƥs Go. 223
ún-lyfigendes OE 103
uns OHG 89, 90
unser MnGer. 80
unsih OHG 90
unsinkbar MnGer. 233
únƥa Go. *108*
uppa OFri. 157
uppan OS 159
uppe OE 154
uppi OI 151
urus Lat. (Gmc.) 6
us lPGmc. 249
**ús-* PGmc. (proclitic) 109
us- Go. (proclitic) 107, *108*
ūs OE 89, 90
us OFri. 89, 90
ūs, us Ger. (dial.) 93
ūs OS 89
usalƥans Go. 75
us-gaggan Go. 108
us-giban Go. 107
ūsic OE 90
ùs+iddja Go. 113
ūsig OE 90
uskijan- Go. 181
ùs-láub-eiƥ Go. 109
ùs-láubjan Go. 108, 112
us-luka Go. 121
us-nu-gibiƥ Go. 108
uswaurhtais Go. 191
uswaurts Go. 191
ūt Go. *108*
ūtana Go. 63
útgaggan Go. 108
uz lPGmc. 249
**ùz-* PGmc. (proclitic) 109
ūzan(a) OHG 63
**uz-láubjanan* PGmc. 112
uz-uƥ-ƥan-iddja Go. 108

V
vãbalas Lith. 56
vagga OI 151
vakna ON 85
vaknada ON 85
valē- Lat. 53
valda ON 53
vandeñs Lith. 44
vanduõ Lith. 44
varmr OI 164
vártami Skt. 186
vas OI 151
vãškas Lith. 52
vasks Lett. 52
vātes Lat. 59
vatn MnNorw. 242
vatn ON 44, 59
vavárta Skt. 186
vavṛtimá Skt. 186
vax ON 52
vē ON 45
vebele.i. Ven. 56
veit OI 151
vekja OI 88, 170
vekkja OI 88, 170
vēl ON 197
velĕdti Lith. 53
veldù Lith. 53
veldžiu Lith. 53
vēlum Lat. 52, 133
ver OI 151
vēr OI 151
vereiiaí Osc. 61
verð OI 168
ver-gehen NHG 108
verja OI 169
verk OI 168
verpa OI 168
verma OI 120
verr OI 122
vetr OI 168
vesa OI 151
vexillum Lat. 52
vhouχ Ven. 69
(via) strāta Lat. 86
victima Lat. 45
við OI 123
viðar OI 123
videō Lat. 165, 166
viði OI 123
viðr OI = ON 123, 253
vienúolika Lith. 57
vīf ON 253
vindr OI 151
vīrr OI 124
vīs OI 151
vīsa ON 189
vīs-dōmr ON = OI 87, 222
vissa OI 151
visum Lat. 189
vīsus Lat. 166
vita OI 151
vladǫ OCS 53
vladu Cz. 53
vlásti Cz. 53
vlasti OCS 53
voda OCS 59
vor NHG 108
Vorhang NHG 104fn.
voskŭ OCS 52
vósk Russ. 52
vṛkáḥ Skt. 57fn.
vṛtanáḥ Skt. 186

W
-w- IE (suff.) 193
wa, wā OFri. 90

Wabe Ger. 52
wæfs OE 169
wǣg OE 155
wæs OE 153, 154
wæter OE 44, 59
wafsa OHG 169
wahs OHG 52
wahsan OHG 191
wahsjan Go. 191
wahstus Go. 191
wair Go. 122, 146
wairaleikō Go. 213
*wairaleiks** Go. 213
wairilom Go. 57
wairpan Go. 168
wairs Go. 168
wairþ Go. 168
waiss+*t* pre-Go. 190
waist Go. 188, 189, 190
wait Go. 146, 188, 190, 257
wája-mērei Go. 108
wája-mērjan Go. *108*
waje Ru. 149
**wakjanan* PGmc. 88, 170
waknan Go. 85
waknōda Go. 85
waldan Go. 53
**waldh-* IE 53
waldnikans OPr. 53
Wallingford NE 106
waltan OHG 53
wanc-luga OHG 66
warjan Go. 61, 120, 169
/warmaz/ PGmc. 164
warmen OHG 120
warmian OS 120
warsus OPr. 57
was Go. 146
was MnE 242
was OHG 163
was OS 159, 160
was Ru. 149
wasserdicht MnGer. *233*
wast OHG 191
wāt OE 154
**wāt-* PIE 59
watar OS 59
οὐᾶτεις Gaul. 59
water MnE 242
watins Go. 44, 59
watnam Go. 190
watō Go. 44, 59, 190
waúrd Go. 111, 121, 168
waurkeiþ OHG 168
waurkjan Go. 121, *191*
waurk+*ti-* Go. 191
waurstw Go. *191*
wazzar OHG 44, 59
we, wē OE 90, 154
we OLFra. 90
wē OS 90, 159
wearð OE 184, 186
wearm OE 164
weax OE 52
weben Ger. 52
**webhe/o-* PIE 56
weg OE 154
wei OFri. 157
weibil OHG 224
weibōn OHG 224
weið PGmc. 258
weihs Go. 45
wein OFri. 157
weis Go. 146
-weis Go. 146, 166, 189
weiz OHG 163
**wek-s-lo-m* PIE 52
welĄdud Ru. 217
Wélenga-fòrd OE 106
wēoh OE 45
weorc OE 168
weorpan OE 168
weorþ OE 168
weorþan OE 123, 184, 186
wer OE 122, 154
wer OFri. 157
wer OHG 90, 122, 163
wer OS 122, 159
wera OFri. 169
werd OHG 168
werðan OS 259
/werdh-sk^{w}-/ PIE 164
were MnE 242
weren OHG 169
werfan OHG 168
werian OE 169
werian OS 169
werk OFri. 168
werk OHG 168
werpa OFri. 168
wer(p)fan OHG 168
werth OFri. 168
wes OFri. 156, 157
wesa OFri. 91, 156, 157
wesan OE 153, 154
wesan OHG 163
wesan OS 159, 160, 259, *262*
wēt OFri. 157
wêt OS 159
**weyd*+*sā-* IE 189
/weyd-to/ PIE 166, *189*
/weyt-to/ PIE 166
**wH$_2$-el-* PIE 53
wi, wī OFri. 90, 157
wi, wī OLFra. 90
wi, wī OS 90
wiara OHG 124
**wīða* PGmc. 252, *253*
wiċċa OE 46
/wid-tēt/ PIE 166
**wid*+*to* IE 189
*[wid^{h}us] PIE 137
wiðu-, wiðuz PGmc. 252, *253*
*/widuz/ ePGmc. 137
wie OLFra. 90
wierman OE 120
wīf OE 253
wifel OE 56
wiġle OE 46
wīh OHG 45
wīh OS *45*
wihhan OHG 124
wīh(i) OHG 45
**wikkan-* Gmc. 46
wīl OE 197
wil OHG 134
willa OFri. 91
wil(-lahhan) OHG 134
wind OE 154
wind OFri. 157
wind OS 159
winds Go. 146
winna Go. 192
wint OHG 163
wintar OHG 168
winter OE 168
winter OFri. 168
winter OS 168

wintrus Go. 168
wir OE 124
wir OHG 90, 163
wir OLFra. 90
wīs OE 154, 166, 189
wīs OFri. 157
wīs OHG 163
wīs OS 159
wīsa OS 189
/wīsa-/ PGmc. 166
wisan Go. 146
wisan OS 259
wīsdōm OE 87
-wiss Go. 189
wissa Go. 146, 166, 189
wissa OE, 166
wissa OHG 163
wissa OS 159
/wīssa-/ PGmc. 166
wisse OE 154
/wissē(þ)/ PGmc. 166
wīstuom OHG 87
wita OFri. 91, 157
-witan Go. 146, 165
witan OE 154, 165
witan OS 159
withthe OFri. 157
/wit-tēt/ PIE 166
wiþra lPGmc. *249*
wiþra-ga-mōtjan Go. 228
wiȝȝan OHG 163
wlits Go. 167
**wl̥kʷos* PIE 57fn.
*/wndran/, [wn̥dran] PGmc. 138
-wo- PIE (determinative) 52
**wokso-* PIE 52
wolf OFri. 168
wolf OHG 123, 168
woffian OE 154
wood-board E 232
worahto Ru. 149
word OE 111, 121, 168
word OFri. 111, 168
word OS 111, 121
worden OE 184, 186
wort OHG 111, 121, 168
Wōtan OHG 59
wōþbora OE 59
[wrakjan-] PGmc. 155, *158*
[wrakkjan] WGmc. 155, 158
wraks Go. 167
wreċċan OE 153, 154, 155, *158*
wretza OFri. 156, 157, *158*
wudu OE 253
wulf Go. 168
wulf OE 123, 168
wulf OS 123, 168
wulfs Go. 57fn.
wundor OE 138
**wúrðan* PGmc. 111
wurdon OE 184, 186
wurken OHG 121
wurkian OS 121
wyrcan OE 121

X
**xâit-* PGmc. 34, 199, 206
xâlð- PGmc. 34, 199
**xánēn* PGmc. 101
**xelp-* PGmc. (ablaut) 199
**xexâit-* PGmc. 207
**xé-xàite* PGmc. 103
**xlaup-* Gmc. 34
**xug-* Pgmc. 188
**xug+ði-* PGmc. 188
xwa- PGmc. 86
**xʷan* PGmc. 110
xwe- PGmc. 86
**xʷé-xʷðpe* PGmc. 111

Y
yes NE *115*
ȳkva OI 124
ylgr ON 58fn.
-yo- IE (suff.) 58
yrfe-numa OE 220
yrkja OI 121

Z
zakromit' Russ. 58
zawjan OHG 251
zeit NHG 19
želtas eLith. 51
zèlts Lett. 51
zemmen OHG 169
zēri OHG 197
žërnov Russ. 53
zīhan OHG 60
zin OFri. 157, 158
zinemanne OHG 89
ziohan OHG 163, 165, 166, 184, 194
zît MHG 19
zlato Cz. 51
zlato OCS 51
zocchōn OHG 194
gi-zogan OHG 165, 166, 184
zōh OHG 163, 166, 184
zóloto Russ. 51
žrŭny OCS 53
zucchen OHG 166
zucken MnGer. 166
zugum OHG 121, 184
zunga OHG 62, 163
zugun OHG 139
zur- OHG (pref.) 223
zurtriuue OHG 223
zweiio OHG 85, 163, 193
zweim OHG 193
zweio OHG 193
zwelif OHG 57, 57fn.

Index of authors

Adamus 75, 83, *87*, *92*
Adelung *77*
Agrippa 76
Åkermalm 221
Allen 48
Alminauskis 56
Ananthanarayana 246, 267
Antonsen 4, 22, 41, 83, 86, 94, 96, *118*, 119, 121, *123*, 128, 129, 133, 134, *138*, 139, *140*, 198, *208*
Arndt 24, 75, *84*, *85*
Arntz 14

Bammesberger 188
Bartoli 41, 45
Bach *207*
Bede 77
Beeler 123, 198
Behaghel 80, 240, 248, 249, *252*, 255, *267*
Benediktsson 118, *123*, 133, 136, *198*
Bennett 41, 87, 102fn., 104fn., 110fn., 112, 118, 121, *186*, 188, 216, *223*, 224, 245
Benveniste 37, 54, 259
Bergsland 84
Bergsland-Vogt 24
Bloomfield 27, 29, 218, 226, *227*, 228, 230
Boer 191
Bonfante 26, 41, 47, 48
Bosworth-Toller 251
Braune 163
Braune-Mitzka 5, 125, *126*, 127, 128
Brehaut 77
Brugmann 80, 95
Brunner → Sievers
Buck 37
Buckalew 212fn., 230

Caesar 76
Campbell 123, 126
Carr 212, *212fn.*, *216*, 217, *218*, *219*, *220*, 220fn., 221, *222*, 223, 230, 232, 233
Cassiosorus 77
Čemodanov 50, 51, *55*, *56*, 57, 57fn.
Chafe 184
Chomsky 212fn., 230, 231, 240
Chomsky-Halle 176, 179, 180, 207, *208*
Cleasby-Vigfusson 212fn., 251
Collitz 122
Crossgrove 198
Curme 212fn., 226fn.

D'Alquen 119, 121, 122, 138
DeCamp 89
Delbrück 241, 245, 246, 248, 249, 265, 268
de Saussure 10, 35
de Tollenaere 6
Devoto 47, 48
Diderichsen 240
Dumézil 62, 65
Dyen 73

Ebel 46
Egger 6
Ellis 36

Falk → Torp
Feist 100, 109
Fillmore 236, *240*, 246, 248, 249
Flasdieck 13
Fleischer 212fn., 226fn., 231
Fourquet 100, 123, 194, 200, 206
Friedrich J. 241
Friedrich P. 64fn.

Frings 80, 83
Fromm 16

Gaedicke 246
Georgiev 50
Gleason 27
Gleitmann 230, 231
Glob 76
Grace 241
Greenberg 240, 241
Gregory of Tours 76
Grimm *77*, *78*, 212fn., 213, *217*, 229, *231*, 232, *240*
Güntert 66
Guxman 110fn.

Haas 3, 24
Hall 30, 36, 39, 73
Halle 197
→ Chomsky
→ Jakobson
Hammerich 89, 186, 194
Haugen 6, 16, 152, 170, 195, 198
Hellquist 212fn.
Hempel 115
Henzen 212fn., 229
Heringer 230
Hermann 217
Heusler *246*, 259
Hinderling 199, 206, 212fn., 215, 226
Hirt 34, 36, 37, 46, 47, 50, 57fn., 78, 110fn., 189, 191, 212fn., 214, 217, 240, 247
Hock *123*, 130
Hockett 24, 27, 29, 73, 118, 123
Höfler 15, 41
Hoenigswald 7, 20, 21, 26, 27
Holt 45
Holtzmann 78
Hopper 241
Hubert 66
Hucko 212fn.

Ilkow 212fn., 220

Jakobson-Halle 17, 38
Jēgers 55
Joesten 123
Jóhannesson 212fn.
Johansson 212fn.
Jones 118
Jónsson 223
Joos 160
Jordanes 77

Kammenhuber 45
Karsten 94
Karstien 91
Kent 73
Kieckers 110fn.
Klaeber *244*
King 17, 27, 38, 120, 186, 230, 232
Kiparsky P. 184, 207
Kiparsky V. 54
Kluge 6, 87, 110fn., 133, 134, 212fn., 213, 215, 229
Kock 23
Kögel 48
Kolb 75
Koziol 212fn.
Krahe 15, 47, 49, *50*, *80*, 100
Krahe-Meid 2, 9, 41, 187, 188, 190, *191*, 192, 194
Krause 6, *19*, 75, 86, 87, 88, 94, 104fn., 110fn., 126, 129, 130, 217, 243, *244*, 249
Krenn-Müller 232
Kubrjakova 212fn.
Kufner 10, 73
Kuhn 82, *83*, 84, 89, 94, 95, 96, 144, 223
Kuryłowicz 20, 26, 27, 115, 121, 123, 138, 176, *193*, *194*, 198, 200, 206

Lamb 230
Lane 115, 138
Lees *212fn.*, 230, 231, *232*
Lehmann 18, 22, 29, 31, 37, *41*, 44, *45*, 53, 73, 81, 85, 86, 87, 88, 91, 93, 94, 95, 102, 123, 131, 137, 139, *182*, 197, 198, 235, 242, *243*, 244, 245, 246
Lehmann-Tabusa 244
Lerchner 75
Leskien 46
Leumann 51

Levin 91
Lindemann 85, 193
Löbe → von der Gabelentz
Loewe 25
Loman 229
Lottner *46*
Lowe 230
Lüdtke 73, 131
Makaev 83, 86, 94, 96, 139
Mańczak 20
Marchand H. 212fn., 226fn., 227, 230
Marchand J. W. 15, 73, 94, 97, 115, 118, 122, 138, 182, 190, *194*, *198*, 212fn.
Marinus of Tyrus 76
Martinet 24, 88, 143, 166, 176, 194
Matzel 167
Maurer 40, 77, *81*, 83, *84*, 85, 88, *94*
Meid 188, 189, 190, *191*, 205, 206, 207, *212fn.*, 215, 219, 222, 224 → Krahe
Meillet 3, 11, 17, 29, 33, 38, 46, 47, 50, 86, 93, 182, 242
Michels 104fn., 106fn., 108, 109fn.
Mitzka → Braune
Molinari *43fn.*, 44
Morciniec 212fn., 226fn.
Mossé 94, 110fn., 212fn.
Motsch 198, 230, 231, 233
Moulton 33, 118, 122, 144, 150, 152, 160, 162, 185, 186, 194, 208
Müllenhoff *79*
Müller → Krenn

Nagy 182
Nickel 257
Noreen 149, 151
Nygaard 240

Panini 246, 248, 249, 267
Paul 11, 212fn., 213, 218, 229, *231*
Paul-Stolte 212fn.
Paulus Diaconus (Warnefried) 77
Penzl 13, *16*, *19*, 23, *24*, 144
Philippson 95
Pike 26, 29
Pisani *44*, *47*, 69, 73
Pokorny 37, 101, 109, 110 → Walde
Pollak 216
Polomé 45, 48, *51*, 63, 69, 193, 206
Porzig *48*, *49*, *50*, 51, 73
Postal 120
Prokosch 25, 32, 33, 78, 100, 110fn.
Ptolemaeus *76*
Pulgram 30, 39, 73

Rask 77
Reiffenstein 91
Roedder 212fn.
Rösel 72, 75, 84, 94
Rosenfeld 86, 90, 94
Ross 266
Russer 186

Salus 216, 219
Sampson 27
Sapir 25, 171
Scardigli 45
Schaefer 179
Scheller 54
Scherer *79*, *80*
Schirmunski → Zhirmunskij
Schleicher 36, 78, 79, 80
Schmidt F. L. 77
Schmidt J. *79*, 84
Schönfeld *15*
Schönfeld-van Loey 90, 92
Schützeichel 83
Schulze E. 146, 167
Schulze W. 75, *268*
Schwarz 40, 44, 50, *75*, 77, *81*, *82*, *83*, *84*, 86, *94*, *95*
Seebold 80, 189, 193, 194
Seymour 212fn.
Shannon *245*
Sievers 13, 17, 22, 23, 34, 80, 240, 250, 254
Sievers-Brunner 19
Sigurd 25
Sjölin 89, 90
Small *245*
Söderbergh 212fn.
Sonderegger 198
Springer 81, 91
Stang 44, 57
Stanley 179
Steller 90

Stokes 68
Stolte → Paul
Storch 212fn.
Strabo 76
Streitberg 34, 78, 100, 106, 110fn., 185, 191, 264
Stroh 37
Sturtevant 12, 172
Stutterheim 198
Szemerényi 48

Tabusa → Lehmann
Tacitus 75, *76*
Tanaka 193
Tesnière 240
Toller → Bosworth
Torp 212fn.
Torp-Falk 37, 251
Trnka 198
Trubetzkoy 240
Twaddell 41, 73, 122, 198

Uhlenbeck C. C. 46
Uhlenbeck E. M. 227

Valentin 34
van Coetsem 22, 33, 34, 40, *41*, 83, 85, 86, 94, 96, 97, 122, 131, 134, 136, *177*, 179, 182, 184, 192, 193, 195, *197*, *198*, 199, 201, 203, *206*, *208*, 225
van der Meer 240, 246, 248, 249, 250, *251*, 252
van Helten 92
van Loey → Schönfeld
van Wijk 195, 198
Vasmer 59fn.
Venneman 118
Vigfusson → Cleasby
Voegelin 242
Vogt → Bergsland
von Bahder 212fn., 226
von der Gabelentz-Löbe 212fn.
von Polenz 232
Voyles 38, 118, 144, 186

Wackernagel 241
Wagner 77, 95
Walde-Pokorny 37
Warnefried 77
Watkins 242
Weinstock 38
Wessén 212fn.
Widukind of Corvey 77
Wienold *140*, 198
Wilhelmy 262
Will 138
Wilmanns 212fn.
Winkler *240*, *246*, 248, 289
Wissmann 194, 199
Wrede *80*, *81*, 89, 90, *91*, 93
Wright 127, 212fn.
Wunderlich 212fn. 237
Wurzel 176

Zeuss 46
Zhirmunskij, Žirmunskij 44, 81, 83, *84*, *86*, 88, *89*, *93*, *94*, 95, 120
Zimmer 78, 84

Topical index

ablaut: verbal – 198–208 (occurrence PGmc. 199; classification 199–200, 206; ePGmc. 200–3; lPGmc. 203–5; IE 204–6); – in WF 225–6; nasalization and – 183
accent: IE and Gmc. 100; Gmc. accent shift 100–2
action nouns 226
adverb preposing rules 265
affixes 221–22; → prefixes, suffixes, infixes
affricates OFri. 158
agreement rule: verb-subject 250, 260; within NP 263; number – 250
aims: of comparative Gmc. linguistics 7–10; of PGmc. syntactic studies 208
allophones: positional – of PGmc. consonants 172–3; – and Verner's law 185
alternations: *p, b* ~ *f* and *k, g* ~ *x* 186; *t, þ, ð* ~ *s(s)* 188–9; *t, þ, ð* ~ *ø* 190–2; → morphophonemic alternations
analogy 19–20, 24, 35; inverted – 206–7
archeology 7, 9
athematic verbs 86

bahuvrīhi 220–1
Baltic-Gmc. correspondences 55–7
Baltic-Slavic-Gmc. correspondences 51–5
Bartholomae's law 188
borrowing: instances 74, 91, 92, 173, 243 and Polomé's essay, *passim*; – as cause of linguistic change 25; and chronology 23; role of – in sound change 19; syntactic – 20; → Wellentheorie

case grammar 236; Lehmann's essay, *passim*, esp. 240
case names 248–9
Celtic-Gmc. correspondences 64–9
chronology 22–3; – of WF 214–5; – of compounds 216
circumflex vowel theory 115
comparative linguistics (philology): aims of – 7–10; definition 2–3; relation of – to descriptive linguistics 3, 10–1
comparative reconstruction: aims of – 7, 28; definition 8–9; – and internal reconstruction 26; procedures of – 29; → proto-languages, reconstruction
complementizer placement rule 256–9
composition vowel 219
compounds: definition 216; primary – 217; secondary – 217; compound verbs 107–8, 221; quasi-compounds 104–5; – and syntax 242, 245; chronology of – 216; stress in – 104; → copulatives, exocentrics, determinatives
concrete nouns 226
conditional sentences 265
conjunction reduction rule 254–6
conservatism of PGmc. 45–6
consonant clusters of PGmc.: initial – 167; non-initial 167–70
consonantal influence 194–5
consonantal systems: PGmc. 142; Go. 144–7; Ru. Norse 147–50; OI 150–2; OE 152–5; OFri. 155–8; OS 158–60; OHG 160–2; PIE 162
contraction 90–1, 112–5
contrastive linguistics 3
convergence of languages 41–2
copulatives 219–234
correlatives 264

dentals: alternations of – 188–92; geminates 193–4; WGmc. *ð* > *d* 88–9
derivation 221–3, 225
descriptive linguistics: definition 3; – of older stages 7; theoretical models 10; relation of – to diachronic linguistics 10–1, 13
designations of Gmc. languages 3–4
determinatives 220, 235
devoicing: IE 187–8; OE 153–5; OFri. 156
diachronic analysis 7–8; relation of – to synchronic analysis 10–1, 13
dialects 5, 39–40
dialect geography 92–3
dieresis in Go. 112–3
distinctive features 17, 32; – of PGmc. vowels 132–4; matrix of PGmc. – 209
divergence of languages 41–2
drag chains 24
drift 25, 93–4, 171–2
dual 91
dvandva 219
dvigu 221

*ē*¹ > *ā* NWGmc. 86–7
*ē*²: occurrence 124–5; origin 131, 197–8; – replaces reduplication in NWGmc. 86, 199, 206–7
e-a-period 199–200
Equi-NP-Deletion rule 259–60
etymology 21, 37
exocentrics 220–1, 234

Family Tree Model → Stammbaum
features → distinctive, semantic, syntactic
First Grammatical Treatise 6, 16
fronting PGmc. *a* > *æ* 89
futhark 134, 148

geminate: alternation with – 192–4; → length, obstruents (dentals, labials, velars), liquids, nasals
gemination, WGmc. consonant – 88
GTA 231–6
genetic linguistics 2–3
gerund 89
glides, alternations of – 193
glottochronology 23–4, 84–5
Gotho-Nordic hypothesis 81–4
gradualness of sound change 17, 18, 32
grammatical descriptions 6, 16
grapheme <ei>, origin of – in Go. 131
graphemic analysis 12–3
Grimm's law 164–5
grouping: see Kufner's and Polomé's essays, *passim*; criteria for – 75; IE survey 46–51; northwestern IE unity accepted 57, 59; Gmc. survey 94–7; older proposals for Gmc. – 77–80
Gutturalisierung 85

historical linguistics, definition of – 2–3
HPA: definition 213; results of – in study of WF 216–26; terminology 229–30; – and TA contrasted 227
history: use of – 7, 9; contemporary – of Gmc. tribes 75–7
Holtzmann's law 85

inchoative verbs 85
indicative endings: uniform pres. pl. 90; 2 sg. pret. 87, 188; 3 sg. pres. 'to be' 87
infixes 224
Ingveonic 89–90
Ingveonic hypothesis 80–1
innere Gesetzmäßigkeiten 93–4
innovations shared 85–91: Scand.-Go. 85–6; NGmc.-WGmc. 86–7; WGmc. 88–89; OE-OFri. 89–91; Go.-OHG 91
insertion rules 261
intensifiers 222
intuition 232
inversion rule, subject-verb – 266
Italic-Gmc. correspondences 59–63
<iu>, Go. – as unit phoneme 128

juncture 112–5: internal open – 112–3; internal close – 113; external open – 113–4

kāraka 246, 248–9
karmadhāraya 220fn.

labials: Go. – 145; alternations of – 186–8; deletion of – 191; loss of – in WGmc. 88; geminates 193–4
labiovelars: PGmc. – 143; Go. – 147
laryngeals 35
Latin → Italic
length: vowel – 115 and Antonsen's essay, *passim*; consonantal –: PGmc. 115, 142–3, 165–6, Go. 145, OI 150–2; OS 160; maximum morpheme – in PGmc. 178–9; – of Comps. 216; – and nasalization 183
lexical change 21
lexical entries: – of verbs 250–2; – of adjectives 251; – of nouns 252–3
lexical reconstruction 37
lexicology 14
lexicon of PGmc. 45–6; → technical terms
linguistic change: causes of – 25–6; interrelations of types of – 24; reconstruction of – 38; types of 18–21
liquids 192–4

marking 203, 242
metathesis 90
methodological remarks (except for Penzl's essay): 102, 118, 120, 144, 176–8, 208, 213, 240, 242, 246
metrical evidence 13
morphological change 19–20; connection of – with phonological change 20, 24
morphology 227–9; – of Comps. 218–9; – of WFPs. 215
morphophonemic alternations (except for van Coetsem's essay): 27, 34
mythology 7

names 6, 15; use of – for staging 23
nasals: 143, 192–4; loss of – 89; nasal influence 89
nasalization 183–4
negative incorporation rule 265–6
negative placement rule 261
nonroot syllabics 138–9
Nordic-Alemannic hypothesis 81
number agreement rule 250

OV language 241, 243; PGmc. as – 243–6
obstruents: Moulton's essay, *passim*; PGmc. 143; Go. 145–7; → dentals, labials, labiovelars, velars
OE-Nordic hypothesis 84
'one phoneme or two?': PGmc. *i*, *e* 122–3, 194–5; Go. <ai>, <au> (length) 118–9
one phoneme vs. cluster: Go. *hw*, *q* 147
ordering of rules 178, 235
orthographic normalization 5
Oscan → Italic

palatalization in OS 160
palatals in OE 155
paradigmatic structure of PGmc. non-syllabics 142–66
part.: pres. – 85
particles → question formation rule
periods → stages
periphrastic constructions 259
philological method 11, 17
phonological change 18–9; connection of – with morphological change 20, 24
phonological reconstruction 32–5
phrase structure rules 246–50
phrases, verb – 107–8
pitch 116
polarity inversion 206–7
possessive clause reduction rule 263
possessive formation rule 262
postpositions 249
prefixes 223–4; → proclitics
prenominal modifier placement rule 263
preterit-presents 257–8

proclitics 108–9, 223–4
pronouns: demonst ative – 87; interrogative – 86; personal – 90, 91
PGmc., definition of – 102; reconstruction of WF in – 213–4; uniformity of – 44–5
proto-language: character of – 330; phonemic pattern of – 33–4; staging of – 40–1; reconstruction of – 7, 29, 118; sub-proto-languages 28–9
push chains 24

question formation rule 256–5

reconstruction: – as aim of comparative linguistics 7; internal – 8, 26–8; inverted – 27, 31; – as formulae or history 27–8, 30, 32; – from – 31–2; – of allophones 33; – of consonantal systems 144; – of linguistic change 38; – of roots 36; – of suprasegmentals 34; → comparative, proto-languages
relative clause formation rule 261
relative clause reduction rule 262
reordering of rules 266
resonants 137–8, 165, 181–2
rhotacism 86
roots, type of – entering WFPs. 215
roundedness 132–4

Schallanalyse 13, 17, 34
scribal practice 12–3
segmentation 227
semantic change 21
semantic features 233
semantics of Comps. 219–21, 231–3
semivowels WGmc. 155
Sievers' law 182
Sievers-Edgerton pattern 138
Slavic-Baltic-Gmc. correspondences 51–55
social characteristics of IE languages 59–62, 66–8
sound shift: first – (Germanic –, Grimm's law) 164–5; second (High German) – 161
SGmc. 84–5
stages of the Gmc. languages 3–4, 22–3, 40–1
Stammbaumtheorie 73, 78–9
stress: degrees of – 103; PGmc. stress patterns 111; → syntactic, word
sub-proto-languages 28–9, 39–40
substitution test 229
suffixes: NWGmc. 87; PGmc. 224–5
syllabics in PIE 136–7
syllabicity: PIE 181–2; PGmc. 179–83; Gmc. languages 181
synchronic linguistics → descriptive
syntactic change (except for Lehmann's essay) 20–1
syntactic features 233
syntactic reconstruction (except for Lehmann's essay) 36–7
syntactic stress 103; primary – 107, 111; secondary phrase stress 107–8, 112; weak – 109–10, 112
syntactic transformational rules 254–66
syntagmatic structure of PGmc.: – non-syllabics 167–73; the relevant positions of – 142, 144

tatpuruśa 220
TA to WF 226–30
technical terms of IE languages 45, 53, 61–3, 64, 69
tenseness 118, 124–7, 130
texts: analysis of – 11–5; chronology 72–3; localization of – 22; minimal – 5–6; names 6; types of – 5; – used for syntactic analysis 242, 243–6
typology 241

Umbrian → Italic
umlaut 140, 194–8; status of – in OHG, OS 119–20
uniformity of PGmc. 44–5

velars: PGmc. – 143; Go. – 145–7; OI – 152; alternations of – 186–8; deletion of – 191; geminates 193–4
Velarization 85

VO languages 241, 243
Verner's law 100–2, 184–6; – deleted in Go. 128
Verschärfung 85, 193
vibhakti 246, 248–9
vocalic system: ePGmc. 139; lPGmc. 140; – of nonroot syllables 135
voicing: OE 153–5; OFri. 156; OS 160

Wanderwörter 21
Wellentheorie 40, 73–4
WGmc. vs. EGmc. 79–80
Wörter und Sachen 21, 37–8
WF, definition of – 213
word stress 102–3; primary – 104, 111; secondary – 104, 111; weak – 105–6, 111

Zusammenrückung 217–8
Zusammensetzung 217

Abbreviations

GRAMMATICAL ABBREVIATIONS*

acc.	accusative
act.	actor
adj(s).	adjective(s)
adv(s).	adverb(s)
Agt.	agent
AN	adjective-noun
C	consonant
Comp(s).	compound(s)
CompV	composition vowel
Conj.	(Lehmann) conjunction (Lowe) conjugation
Cop(s).	copulative(s)
C/R	either consonant or resonant
C^{-R}	any consonant, except resonant
dat.	dative
det(s).	(Lowe) determinative(s) (elsewhere) determiner
dial(s).	dialect(s)
Emph.	emphatic
Equi.	equivalent
Exo(s).	exocentric(s)
f.	(Lowe) feminine
fem.	feminine
gen.	genitive
Gl.	glide
GN	genitive-noun
GTA	generative-transformational approach
HPA	historical-philological approach
I	(Lowe) instrumental (van Coetsem) *i* or *y*
imper.	imperative
ind.	indicative
indic.	(Lehmann) indicative
inf.	infinitive
inst.	instrumental
m.	(Lowe) masculine
masc.	masculine
Mod.	modality
n.	(Lowe) neuter
N	noun
Nas.	nasal
Neg.	negative
neut.	neuter
nom.	nominative
NP	noun phrase
O	object
Ob.	obstruent
opt.	optative
OV	object-verb
part.	participle
Pass.	passive
PC(s).	primary compound(s)
pl.	plural
Poss.	possessive(s)
P. P.	prep. phrase
Pref(s).	prefix(es)
Prep(s).	preposition(s)
pres.	present
pret.	preterit
Prop.	proposition
PS	phrase structure
Q	question
R	resonant
S	subject
Σ	sentence
SC(s.)	secondary compound(s)
sg.	singular
Sg.	Sigurđarkviđa in skamma
Suff(s).	suffix(es)
T	transformational
TA	taxonomic approach
U	*u* or *w*
V	vowel (Lehmann) verb
Vb(s).	verb(s) (Lehmann) verbal
Vd.	voiced

* Some abbreviations may differ as to capitalization and punctuation, e.g. both *Acc* and *acc.* occur.

Vl.	voiceless
VO	verb-object
voc.	vocative
Vsp.	Vǫluspá
WF	word formation
WFP(s.)	word formation pattern(s)
wk.	weak
Z	anything conjoined

LANGUAGES, LANGUAGE GROUPS AND DIALECTS

Av.	Avestan
Bret.	Breton
Bulg.	Bulgarian
Cz.	Czech
Dan.	Danish
Du.	Dutch
E	English
EGmc.	East Germanic
eLith.	early Lithuanian
ePGmc.	early Proto-Germanic
Fra.	Franconian
Fri.	Frisian
Gaul.	Gaulish
Ger.	German
Gk.	Greek
Gmc.	Germanic
Go.	Gothic
IE	Indo-European
Ill.	Illyrian
Ir.	Irish
Lat.	Latin
Lett.	Lettish
LGer.	Low German
Lith.	Lithuanian
lPGmc.	late Proto-Germanic
lPIE	late Proto-Indo-European
MDu.	Middle Dutch
ME	Middle English
MHG	Middle High German
MIr.	Middle Irish
MLG	Middle Low German
MnE	Modern English
MnGer.	Modern German
MnLG	Modern Low German
MnNorw.	Modern Norwegian
MWelsh	Middle Welsh
NE	New English
NEGmc.	North East Germanic
NFri.	New Frisian
NGmc.	North Germanic
NHG	New High German
NLG	New Low German
Norw.	Norwegian
NWGmc.	North West Germanic
OCS	Old Church Slavic
OCz.	Old Czech
ODan.	Old Danish
OE	Old English
OFra.	Old Franconian
OFri.	Old Frisian
OHG	Old High German
OI	Old Icelandic
OIr.	Old Irish
OLat.	Old Latin
OLFra.	Old Low Franconian
OLith.	Old Lithuanian
ON	Old Norse
ONorw.	Old Norwegian
OPr.	Old Prussian
ORuss.	Old Russian
OS	Old Saxon
Osc.	Oscan
OScand.	Old Scandinavian
OSwed.	Old Swedish
OWelsh	Old Welsh
PGer.	Proto-German
PGmc.	Proto-Germanic
PIE	Proto-Indo-European
PLat.	Proto-Latin
Pr.	Prussian
PScand.	Proto-Scandinavian
PWGmc.	Proto-West Germanic
Raet.	Raetic
Ru.	Runic
Russ.	Russian
Scand.	Scandinavian
SGmc.	South-Germanic
Skt.	Sanskrit
Swed.	Swedish
Toch.	Tocharian
Umbr.	Umbrian
Ven.	Venetic
Vlat.	Vulgar Latin
WGmc.	West Germanic